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Experimental Dermatology WILEY

Epidemiology and Diagnostic Tools (Clinical Phenotypes, Outcome Measures)

76 | Epidemiology of hidradenitis suppurativa

John R. Ingram
Division of Infection & Immunity, Department of Dermatology, Cardiff University, Cardiff, UK

Background: Substantial progress has been made in the field of hidradenitis suppurativa (HS) epidemiology, particularly in our understanding of disease associations [1].
Objectives, Results and Conclusion: Higher rates of metabolic syndrome, coupled with well-known associations with obesity and smoking, lead to a doubled risk of death from cardiovascular (CV) disease, higher than for severe psoriasis. Rates of depression and anxiety are doubled and there is a 2.4-fold increase in completed suicide. Translating this data into HS clinical care provides powerful arguments for screening for CV disease risk factors and mental health problems. Other associations should be considered in holistic HS care, including polycystic ovary syndrome, Down syndrome, inflammatory arthritis and inflammatory bowel disease. Pilonidal sinus is considered part of the HS disease spectrum. Consequences of HS include impaired mobility, lymphoedema and cutaneous squamous cell carcinoma in chronic perianal disease. Demographics of HS in Europe and North America demonstrate HS predominantly affects young adult women. However, the female-to-male ratio is reversed in Asia, being 1:2 in South Korea. There are other differences between the phenotype of HS in different populations, but not yet a sub-phenotype classification system to predict disease trajectory or treatment response. One of the most important epidemiological issues in HS remains the 10-fold difference in prevalence estimates. Population-based studies from USA estimate a prevalence of 0.1%, suggesting HS is uncommon, whereas European studies using several methodologies estimate at least 1%. The difference may be due to variable inclusion of undiagnosed cases, different levels of HS recognition and differing data sources.
Reference: [1] Ingram JR. The epidemiology of hidradenitis suppurativa. *Br J Dermatol* 2020;183:990-998.

82 | Hidradenitis suppurativa phenotypes

Hessel H. van der Zee
Department of Dermatology, Erasmus Medical Center, Rotterdam, Netherlands

Background: The clinical presentation of HS is heterogeneous. Because of this, different phenotypes are very likely to exist. Phenotypes could be of clinical relevance since different phenotypes could have variable pathogenesis, prognosis and require different treatment strategies. Currently, the age of targeted therapy and geno/endotyping, phenotypes are more relevant than ever.
Objectives, Methods and Results: In 2013, Canoui-Poitrine et al. were the first to propose phenotypes based on a latent class analysis. The identified a set of three phenotypes: axillary-mammary type, follicular type, and gluteal type. However, the Canoui-Poitrine types have only a modest interrater reliability. Based on clinical experience van der Zee and Jemec proposed a set of 6 phenotypes: The regular type, frictional furunculoid, scarring folliculitis, conglobata ectopic and syndromic type. However, these phenotypes need yet to be validated. More recently, Martorell et al. Proposed a follicular variant and follicular variant. However also these are in need of validation and testing for clinical relevancy.
Conclusion: There are still important obstacles to overcome in the field of HS phenotyping. Phenotypes must be useable and therefore be clinically distinctive. Furthermore they must be validated for inter- and intra-rater reliability. Most importantly they must have a clinical significance regarding treatment.
Acknowledgements: The Department of Dermatology, Erasmus Medical Center, Rotterdam, Netherlands is a health care provider of the European Reference Network for Rare and Complex Skin Diseases (ERN Skin).

130 | Epidemiology and diagnostic tools: phenotypes of hidrosadenitis suppurativa

Luigi Naldi
Ospedale San Bortolo, Vicenza, Italy

Background: A significant degree of heterogeneity exists in the clinical presentation and established patterns of hidradenitis suppurativa (HS).Latent Class Analysis (LCA) is an optimal way to assess the existence of clusters within a given population.
Methods: We examined data from 17 dermatological centers participating in the Italian Registry of HS (IRHIS), and being enrolled between January 2015 and January 2020.
Results: Overall, 965 patients aged 32.0 ± 12.4 years (mean ± SD) were evaluated. A three-class model in LCA best fitted the data. Patients in latent class 1 (LC1) (20.1%) were females, mostly obese, with a high probability of axillary-groin (0.85) and mammary (0.59) lesions, and with the highest HS severity. LC2 patients (29.6%) were non-obese males, with moderate disease severity, a high probability of gluteal (0.50) and genital (0.17) lesions, besides axillary-groin involvement, and with acne and pilonidal cysts. LC3 patients (50%) were nonobese females with a milder disease and lesions mostly limited to axillary (0.52), and groin areas (0.66).
Conclusion: The stratification of HS patients into a severe "axillary-mammary-groin" phenotype with predominantly anterior-body areas involvement, mainly affecting females, an "axillary-gluteal-groin" phenotype of intermediate severity mainly affecting males, in the posterior-body areas, and an "axillary-groin" phenotype with mildest clinical symptoms and limited skin involvement may help optimizing HS management.
Acknowledgements: I wish to thank Dr. Simone Cazzaniga, Dr. Elena Pezzolo and the GISED network for contributing to the presented study

146 | Comorbidities of hidradenitis suppurativa: epidemiological associations

Katalin Glasenhardt
Department of Dermatology and Allergology, University of Szeged, Szeged, Hungary

Background: Hidradenitis suppurativa (HS) is a chronic systemic autoinflammatory skin disease which has been associated with an increased risk of several comorbidities in prospective and retrospective epidemiological studies.
Objectives, Methods and Results: Conditions such as cardiometabolic disorders (e. g. hypertension, hyperlipidemia, diabetes mellitus), endocrine comorbidities (e. g. polycystic ovarian syndrome, thyroid dysfunction) have been shown to be linked to HS. Diseases which share an immune-mediated pathogenesis with HS are among others inflammatory bowel disease and spondyloarthropathy. Depression, anxiety, substance use disorder, social stigmatization and sexual dysfunction are relevant comorbidities of HS affecting mental and behavioural health. Regarding malignancies, the most important tumour is squamous cell carcinoma which develops in long-standing HS lesions.
With regard to comorbidities, rare syndromic forms of HS need to be mentioned, which include besides the follicular occlusion triad and tetrad, a broad range of syndromes with a possible autoinflammatory pathogenesis, such as PAPASH, PASH, PASS etc. Comorbidity burden increases with disease severity. Meta-analyses indicate variation between studies based upon hospital-based or population-based studies, as well as variation between Caucasian and Asian populations. However, the causative relationship between HS and these comorbidities has only begun to be elucidated. This will allow us to gain insights into the pathogenesis of disease, as well as identify potential common causes which may be novel targets of future therapy.
Conclusion: There is a strong need to move beyond purely descriptive epidemiology of HS comorbidities. Adequate assessment of possible comorbidities of HS patients is also essential in order to reach optimal patient management.
Acknowledgements: The Department of Dermatology and Allergology, University of Szeged, Szeged, Hungary is a health care provider of the European Reference Network for Rare and Complex Skin Diseases (ERN Skin).

100 | Comorbidities of hidradenitis suppurativa: Interpretation and clinical Implications

John W. Frew[1,2]
[1]*Department of Dermatology, Liverpool Hospital, Sydney, Australia;*
[2]*University of New South Wales, Sydney, Australia*

Background: Hidradenitis suppurativa (HS) has been associated with a number of comorbidities in prospective and retrospective epidemiological studies.
Objectives and Results: Conditions such as cardiometabolic disorders (e. g. hypertension, hyperlipidemia, diabetes mellitus), endocrine comorbidities (e. g. polycystic ovarian syndrome) have been shown to be linked to HS. Diseases which share an immune-mediated pathogenesis with HS are among others inflammatory bowel disease and spondyloarthropathy. Depression, anxiety and social stigmatization are relevant comorbidities of HS affecting mental and behavioural health. With regard to malignancies, the most important tumour to mention is squamous cell carcinoma which develops in long-standing HS lesions. However, the causative relationship between HS and these comorbidities has only begun to be elucidated. This will allow us to gain insights into the pathogenesis of disease, as well as identify potential common causes which may be novel targets of future therapy.
Conclusions: There is a need to move beyond descriptive epidemiology of HS comorbidities and examine a number of specific knowledge gaps. Firstly- the paradigm of linear causation regarding HS

and its comorbidities is an oversimplification, and the consideration of common underlying predispositions and mutual influence needs to be considered. Secondly, variations in comorbidity prevalence between different severities of disease and different population groups also requires further investigation. Thirdly, evaluating the clinical utility of screening for comorbidities, using statistics such as the 'number needed to screen' are useful adjuvants in developing recommendations and management guidelines

144 | Structured patient-reported quantifiable records as outcome measures

Gregor B. E. Jemec[1,2]
[1]*Department of Dermatology, Zealand University Hospital, Faculty of Health Science, University of Copenhagen, Denmark;* [2]*Institute of Clinical Medicine, Faculty of Health Science, University of Copenhagen, Copenhagen, Denmark*

Background: Outcome measures can roughly be divided into Patient Reported Outcome Measures (PROM), essentially structured quantifiable recording of symptoms; and physician assessed or objective measures such as thermography or IHS4. While the importance of the latter is undiminished, the former is gaining importance, particularly in chronic non-lethal diseases, such as skin diseases including hidradenitis suppurativa (HS).

Objectives, Methods and Results: General guidance from both the EMA and the FDA indicate a desire for '…evidence generation also offers a chance to capture patient preferences better during the evaluation process…' [1]. For HS PROM the HISTORIC collaboration is developing a range of tools aimed at covering the core domain set for HS [2]. The most complete of these is the HISQoL, a disease-specific validated Health Related Quality-of-Life measure for HS, developed in collaboration with Danish and US patients [3]. PROMS assessing pain, smell, drainage etc. have been proposed and are in various stages of development [4]. These disease-specific PROM can be supplemented with more generic tools such as DLQI, EQ5-D etc., to provide a broader and directly comparable measure vis-a-vis other diseases [5].

Conclusion: Whereas HS-specific PROM allows data synthesis for HS, these organ–specific or general PROM allows comparison with other diseases and states.

Currently PROM development is aimed at trials, facilitating inter-trial comparisons and data synthesis based on what patients and health-care-personnel find to be crucial domains for HS, but as methods mature, dissemination into routine clinical work is envisaged.

Acknowledgements: The Department of Dermatology, Zealand University Hospital, Faculty of Health Science, University of Copenhagen, Denmark is a health care provider of the European Reference Network for Rare and Complex Skin Diseases (ERN Skin).

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165 | Development and validation of an IHS4 dichotomous outcome to assess treatment effect

Thrasyvoulos Tzellos[1,2,3]; Athanassios Kyrgidis[3,4]; Afsaneh Alavi[3,5]; Wayne P. Gulliver[3,6]; Gregor B.E. Jemec[3,7,8]; Michelle A. Lowes[9]; Angelo V. Marzano[3,10,11]; Errol P. Prens[3,12]; Chris John Sayed[13]; Kelsey R. van Straalen[3,12]; Hessel H. van der Zee[3,13,14]; Christos C. Zouboulis[3,15]
[1]*Department of Dermatology, NLSH University Hospital, Bodø, Norway;* [2]*Clinical Medicine, Tromsø University, Tromsø, Norway;* [3]*European Hidradenitis Suppurativa Foundation e.V., Dessau, Germany;* [4]*General Hospital of Thessaloniki "George Papanikolaou", Thessaloniki, Greece;* [5]*Department of Dermatology, Mayo Clinic, Rochester, MN, United states, Rochester, USA;* [6]*Memorial University of Newfoundland, Newfoundland, Canada;* [7]*Department of Dermatology, Zealand University Hospital, Faculty of Health Science, University of Copenhagen, Denmark;* [8]*Institute of Clinical Medicine, Faculty of Health Science, University of Copenhagen, Copenhagen, Denmark;* [9]*The Rockefeller University, New York, NY, USA;* [10]*Dermatology Unit, Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico, Milan, Italy;* [11]*Department of Pathophysiology and Transplantation, Università degli Studi di Milano, Milan, Italy;* [12]*Laboratory for Experimental Immunodermatology, Erasmus University Medical Center Rotterdam, Rotterdam, Netherlands;* [13]*Department of Dermatology, University of North Carolina at Chapel Hill, Chapel Hill, NC, USA;* [14]*Department of Dermatology, Erasmus University Medical Center Rotterdam, Rotterdam, Netherlands;* [15]*Departments of Dermatology, Venereology, Allergology and Immunology, Dessau Medical Center, Brandenburg Medical School Theodor Fontane and Faculty of Health Sciences Brandenburg, Dessau, Germany*

Background: For a chronic systemic inflammatory skin disease, such as hidradenitis suppurativa, it is essential to have validated and easy-to-use outcomes that can be used both in clinical trial setting and daily clinical practice. The EHSF has previously developed the IHS4 severity score as an ordinal scale [1]. The novel IHS4 is a validated tool to dynamically assess HS severity. The resulting IHS4 score is arrived at by the number of inflammatory nodules (multiplied by 1) plus the number of abscesses (multiplied by 2) plus the number of draining tunnels (multiplied by 4). A total score of 3 or less signifies mild, 4-10 signifies moderate and 11 or higher signifies severe disease.

Objectives: A dichotomous outcome is more suitable for clinical trials reporting as opposed to an ordinal outcome.

Methods: The EHSF utilized post-hoc analysis of individual patient data from PIONEER phase 3 studies that evaluated the efficacy of adalimumab versus placebo. Discriminant analysis was performed, to examine different cut-off thresholds to determine the most accurate IHS4 cut-off, suitable for a binary outcome variable.

Results and Conclusion: A dichotomous outcome for IHS4 is proposed that can be used both in daily clinical practice and clinical trial setting to assess anti-inflammatory effect of available and future treatments. This is a 55% reduction of IHS4 score value compared to baseline. Correlations between the new dichotomous outcome and HiSCR and MCID for important patient reported outcomes showed that the new outcome performs well.

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Reference: [1] Zouboulis CC, Tzellos T, Kyrgidis A, et al. Development and validation of IHS4, a novel dynamic scoring system to assess hidradenitis suppurativa/acne inversa severity. *Br J Dermatol* 2017;177:1401-1409.

116 | The Development of HS app for smartphone; an easy tool for phenotyping in the daily practice

Barbara Horváth

University Medical Center Groningen, Dermatology, Groningen, Netherlands

Background: Hidradenitis suppurativa is a heterogeneous disease making the treatment challenging. Currently, there are several attempt for a useful phenotyping and classification. However, further validation are still needed. Moreover, clinicians struggle with combining different treatment modalities in different phenotypes.

Objectives, Methods and Results: Previously, a group of experts renewed the most used Hurley classification with a view to offer guidance for clinicians in the daily practice. However this classification is not an dynamic tool and needs improvement, the construct validation study confirmed the relevance of the subtypes within Hurley I and Hurley II [1]. The Refined Hurley classification showed a good inter and intra-rater reliability too [2]. Further, based on this classification also a patients' self-assessment algorithm is invented [3]. The strength of the de refine Hurley classification is, that it offers a therapeutic algorithm based on international guidelines and expert opinion.

Conclusion: A smartphone application in Dutch and in English is developed to promote the use of this easy tool for assessing HS patient in the consultation room; the EHSF App (Figure 1).

FIGURE 1 QR code for HS App

Funding: Dutch version by AbbVie Nederlands, English version by EHSF e.V.

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31 | DLQI scores in hidradenitis suppurativa patients

Piotr K. Krajewski[1]; Lukasz Matusiak[1]; Esther von Stebut[2]; Michael Schultheis[3]; Uwe Kirschner[4]; Georgios Nikolakis[5]; Jacek C. Szepietowski[1]

[1]Department of Dermatology, Venereology and Allergology, Wroclaw Medical University, Wroclaw, Poland; [2]Department of Dermatology, Faculty of Medicine, University of Cologne, Cologne, Germany; [3]Department of Dermatology, University Medical Center, Johannes Gutenberg University, Mainz, Germany; [4]Dermatology Outpatient Office Dr. Uwe Kirschner, Mainz, Germany; [5]Departments of Dermatology, Venereology, Allergology and Immunology, Dessau Medical Center, Brandenburg Medical School Theodor Fontane and Faculty of Health Sciences Brandenburg, Dessau, Germany

Background: The chronic, inflammatory skin disorder hidradenitis suppurativa (HS) is associated with the formation of lesions at multiple body areas, foul smell, purulent discharge and considerable pain. As a result, negative influences on patient's quality of life (QoL) have been documented in prior publications.

Objectives and Methods: The aim of the study was to further characterize und understand the QoL impairment associated with HS in a cohort of 1795 German patients. The QoL impairment was assessed with the use of Dermatology Life Quality Index (DLQI) and HS severity with Hurley staging system and International Hidradenitis Suppurativa Severity Score System (IHS4). Additionally, life impairment was correlated with various clinical features.

Results: Overall patient reported a very large effect of HS on their QoL (mean DLQI 13.2 ± 8.1 points); 22% of the analyzed population even reported to consider the effect as extremely large and only 6% of the patients reported that their HS had no effect on their QoL. Women tended to experience a significantly higher impairment than men ($p < 0.001$). The QoL impairment correlated positively with pain ($r = 0.581$, $p < 0.001$), HS severity – measured by International Hidradenitis Suppurativa Severity Score System (IHS4) – as well as Hurley. Neck involvement tended to decrease QoL significantly more than any other location (14.7 ± 8.3 points).

Conclusion: This study confirms the enormous influence of HS on patients' QoL in a big cohort. The knowledge on QoL impairment in those patients is crucial for proper understanding and holistic management of this disease.

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158 | Epidemiology and diagnostic tools: Pain in hidradenitis suppurativa

Elizabeth O'Brien
McGill University, Montreal, Canada

Background: Although pain is recognized as a constant feature of hidradenitis suppurativa (HS), until very recently there were few studies examining the specific prevalence, severity, and types of pain experienced by HS patients. It is well documented that pain has a significant impact on psychosocial function and quality of life, and these associations have been reported frequently over the past several years.

Objectives, Methods and Results: Concerted efforts to improve disease management are unlikely to eradicate the need for effective pain management in the near future. However, a much deeper understanding of pain is essential for the advancement of pain management. Recent studies have begun the long overdue examination of the pain itself, through the application of patient reported outcomes and pain measurement scales developed in dermatology and in other medical disciplines that deal with acute and chronic pain.

Conclusion: An increased appreciation of the nature and prevalence of pain experienced by HS patients will hopefully lead to improved pain management in HS.

67 | Pain Index: A new prospective hidradenitis suppurativa patient-reported outcome measure instrument

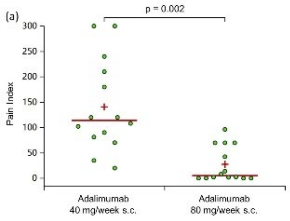
Christos C. Zouboulis[1,2]
[1]*Departments of Dermatology, Venereology, Allergology and Immunology, Dessau Medical Center, Brandenburg Medical School Theodor Fontane and Faculty of Health Sciences Brandenburg, Dessau, Germany*; [2]*European Hidradenitis Suppurativa Foundation e.V., Dessau, Germany*

Background: Pain, drainage and itching are symptoms, which mainly reduce the quality of life of hidradenitis suppurativa (HS) patients [1]. Pain could be classified in a nociceptive, acute skin pain (ASP) and a chronic central sensitization (CCS), which some patients call pain, and is associated with overall performance [2]. Few studies have evaluated the ASP impact in HS in an evidence-based manner. Retrospective ASP assessment in daily/weekly/monthly intervals by visual analogue or numeric rating (NRS) scales has been included in clinical studies with the disadvantage of exact ASP severity recalling by patients [3]. In addition, the CCS worsens the capacity of retrospective ASP calculation.

Objectives and Methods: To optimize the ASP assessment for clinical studies, a prospective mode of ASP severity and short duration of ASP assessment was applied in a clinical study of adalimumab intensification in 14 treatment-resistant patients [4]. ASP (NRS, 0-10) was assessed daily for 30 days.

Results: The so called "Pain Index" (0–300 points) was reduced from 110 (interquartile range 83–188) to 11 (interquartile range 2–48; $p = 0.002$) after the intensified adalimumab treatment (Figure 1a). Pain Index correlated with pain NRS and improved the correlation with the International Hidradenitis Suppurativa Severity Score System (IHS4) from low to moderate [5] (Figure 1b).

Conclusion: The Pain Index, calculated by ASP severity (NRS, 0–10) × daily pain duration (0–30 days), is a new prospective patient-reported outcome measure instrument for clinical studies and can be associated with a mobile phone App to remind the patients to assess the daily ASP.



(b)

r_s*	Pain NRS	IHS4	HS-PGA	DLQI
Pain Index	0.92	0.40	0.43	0.31
Pain NRS		0.28	0.39	0.45
IHS4			0.77	-0.35
HS-PGA				-0.08

(a) Effect of intensified adalimumab treatment (80 mg/week s.c.) on the Pain Index(b) Correlation of Pain Index with pain numeric rating scale (NRS) as well as with the International Hidradenitis Suppurativa Severity Score System (IHS4), the HS Physician Global Assessment (HS PGA) and the Cardiff Dermatology Life Quality Index(DLQI) * Spearman's Rho Correlation Coefficient (r_s): High degree of correlation: ±0.80 and ±1, moderate degree ±0.30 and ±0.49, low degree: below ±0.29.

FIGURE 1 Pain Index

Acknowledgements: The Departments of Dermatology, Venereology, Allergology and Immunology, Dessau Medical Center, Dessau, Germany are health care providers of the European Reference Network for Rare and Complex Skin Diseases (ERN Skin).

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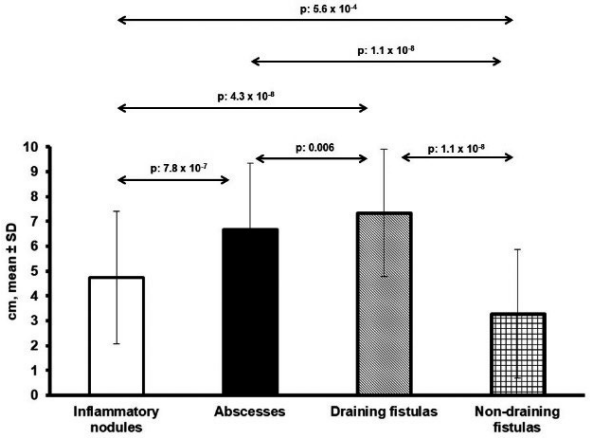

FIGURE 1 Visual analogue scale of the impact of each type of lesion on the quality of life. The *p*-values of comparisons by the Wilcoxon's test are provided

96 | Impact of individual lesions of hidradenitis suppurativa in the quality of life

Maria Mouktaroudi; Vassiliki Tzanetakou; Styliani Micha; Amalia Bolanou; Theodora Kanni; Sofia Rellou; Evangelos J. Giamarellos-Bourboulis
4th Department of Internal Medicine, National and Kapodistrian University of Athens, Athens, Greece

Introduction: Counts of inflammatory nodules (IN), abscesses (AB) and draining fistulas (DF) define the severity by the International Hidradenitis Suppurativa score. This introduces the concept if different types of lesions have distinguishable impact on the quality of life (QoL).
Objectives: To compare the impact of IN, ABS, DF and non-DF on the QoL.
Methods: 73 patients with Hurley II or Hurley III HS answered a questionnaire with four questions on each type of lesion in the QoL using one visual analogue scale (VAS) and one question on the global impact of HS in the QoL. VAS was graded from 0 (no impact) to 10 cm (the worst ever felt). This was repeated 4 and 12 weeks after start of biological treatment for 23 patients. The change of VAS from baseline was correlated to the respective change of the lesion counts.
Results: DFs had the highest and non-DFs the least impact (Figure 1). Logistic regression analysis revealed VAS for INs and DFs to be independently associated with the global VAS (odds ratio 1.25 for INs and 1.24 for DFs). Significant correlation was found between the changes of VAS for DFs and their absolute count after 4 weeks (*r*: +0.509, *p*: 0.016) and 12 weeks (*r*: + 0.609; *p*: 0.012) of treatment; no significant correlations were found for INs and ABS.
Conclusion: Each type of lesion has distinguishable impact on the QoL; DFs have the highest impact. The change of DFs after treatment may lead to major improvement in the QoL.

54 | Convergent validity of suffering and quality of life as measured by the Hidradenitis Suppurativa Quality of Life

Christoffer Kursawe Larsen[1]; Rune Kjærsgaard Andersen[1]; Joslyn Kirby[2]; Jerry Tan[3]; Ditte M.L. Saunte[1,4]; Gregor B. E. Jemec[1,4]
[1]Department of Dermatology, Zealand University Hospital, Faculty of Health Science, University of Copenhagen, Denmark; [2]Department of Dermatology, Penn State Milton S Hershey Medical Center, Hershey, USA; [3]University of Western Ontario, London, Canada; [4]Institute of Clinical Medicine, Faculty of Health Science, University of Copenhagen, Copenhagen, Denmark

Background: Hidradenitis Suppurativa (HS) negatively affects Health-Related Quality of Life (HRQOL). In the absence of a disease specific patient reported outcome measurement instrument for HS-specific HRQOL in clinical studies the Hidradenitis Suppurativa Quality of Life (HiSQOL) was recently developed and validated.
Objectives: Here we study the convergent validity of HiSQOL, Dermatology Life Quality Index (DLQI), and the suffering measurement instrument Pictorial Representation of Illness and Self Measure-Revised 2 (PRISM-R2).
Methods: We distributed HiSQOL, DLQI, and PRISM-R2 (reporting the two measures Self-Illness Separation (SIS) and Illness Perception Measure (IPM)) to HS-patients at the outpatient clinic at the Department of Dermatology, Zealand University Hospital, Roskilde, Denmark and 103 patients were included. We made correlation analyses between the three instruments and conducted a sub-analysis with data from a sub-group of the patients with severe scores in the HS-specific questions of HiSQOL.
Results: The correlation between HiSQOL and DLQI was very strong (ρ = 0.93, $p < 2.2{\cdot}10^{-16}$, (95% CI: 0.89;0.95)) and the two instruments were positively associated with IPM. The correlation between HiSQOL and SIS (ρ = −0.73, $p < 2.2{\cdot}10^{-16}$, (95% CI: −0.81; −0.62))

and between DLQI and SIS (ρ = −0.70, $p < 2.2{\cdot}10^{-16}$, (95% CI: −0.79; −0.59)) was moderate. SIS was negatively associated with IPM.

Conclusion: We suggest that HiSQOL can be used as a patient reported outcome measurement instrument and that it can additionally capture suffering among HS-patients.

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17 | Hidradenitis suppurativa patient's on-line education program during COVID-19: Qualitative analysis of patient's feedback

Shani Fisher[1,2]; Dr. Michael Ziv[1]

[1]*Dermatology, Emek Medical Center, Afula, Israel;* [2]*Medicine Faculty, Tel Aviv University, Tel Aviv, Israel*

Introduction: During COVID-19 epidemic, HS patients dealt with massive information, falsehood, and countless questions with no clear answers.

Objectives: Trying to assist, an on-line education program was conceived.

Methods: 10 webinars were executed, dealing with topics as anatomy, pathophysiology, comorbidity, pharmacological treatment, surgical treatment, lifestyle, nutrition, intimacy, exercise, and law matters. Special attention was given to the effect of COVID-19. We analyzed feedbacks by content analysis.

Results: More than 50 patients participated in the webinars. The main themes revealed were the educational journey and thankful and gratitude. The most common reason for not attending is difficulty with webinars' schedule.

Discussion/Conclusion: As we explored the feedback of the educational program and its impact on participants, we can point to two main themes. First, the need for knowledge and health education. We defined it as an educational journey since the webinars were built from bases (anatomy, pathophysiology end, etc.) to lifestyle issues and law matters. Health literacy (HL) represents the cognitive and social skill of the individual to access, understand, and use information in a way that promotes and leads the individual to good health [1]. Hence, HL is a product of health promotion and education that provides personal and social benefits. When a person can perform proper HL, there is understanding and he implements the information he consumed, his sense of self-efficacy increases regarding his ability to accomplish self-care [2]. Regarding the second theme, thankful and gratitude, participants felt that it is not a trivial matter to create this program.

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P21 | Do men and women have different clinical characteristics in hidradenitis suppurativa?

Farida Benhadou[1,2]; Axel P. Villani[3,4]; Dillon Mintoff[5]; Philippe Guillem[2,6]

[1]*Dermatology, Erasme Hospital, Université Libre de Bruxelles, Brussels, Belgium;* [2]*ResoVerneuil, Paris, France;* [3]*Dermatology, Edouard Herriot Hospital, Hospices Civils de Lyon, Université Claude Bernard Lyon I, Lyon, France;* [4]*Groupe HS-France de la Société Française de Dermatologie, Paris, France;* [5]*Dermatology, Mater Dei Hospital, Malta, Malta;* [6]*Surgery, Clinique u Val d'Ouest, Lyon, France*

Background: Hidradenitis suppurativa (HS) has been reported to predominantly affect female patients.

Objective: Notwithstanding, the role of gender in HS manifestation has not been thoroughly investigated in a large cohort of patients.

Methods: We performed a retrospective review of patients seen in HS clinic between 2006 to 2020 in order to assess the clinical characteristics of the patients according to their gender.

Results: We collected data from 1653 patients (women/men: 63%/37%). Demographic data were similar between the two groups except for a lower prevalence of smokers among women (76% vs 89%, $p < 0.001$). The mean age at first presentation was lower in women (20 vs 22 years, $p < 0.001$). The inguinal, mammary and pubic areas were more frequently affected in women (83% vs 56%; 30% vs 7%; 23% vs 18%), while neck, anoperineal and intergluteal areas were more affected in men (30% vs 10%; 27% vs 14%; 50% vs 29%). Inflammatory rheumatism and bowel disease were more prevalent among women (6% vs 2%; 3% vs 1%, $p < 0.009$), while acne vulgaris and components of follicular triade were more prevalent in men. While men presented with a more severe disease: Hurley stage I/II/III = 57/36/7% vs 42/41/17% ($p < 0.001$), impairment in quality of life and maximal flare-associated pain were higher in women (DLQI = 14 vs 12, $p < 0.001$ and VAS = 7.8 vs 7.4; $p < 0.011$).

Conclusion: Our data showed interesting gender differences, suggesting potential genetic or hormone susceptibilities as pathogenetic factors in HS.

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P25 | Pain assessment in patients suffering from hidradenitis suppurativa

Piotr K. Krajewski[1]; Lukasz Matusiak[1]; Esther von Stebut[2]; Michael Schultheis[3]; Uwe Kirschner[4]; Georgios Nikolakis[5]; Jacek C. Szepietowski[1]
[1]*Department of Dermatology, Venereology and Allergology, Wroclaw Medical University, Wroclaw, Poland;* [2]*Department of Dermatology, University of Cologne, Cologne, Germany;* [3]*Department of Dermatology, Johannes Gutenberg University, Mainz, Germany;* [4]*Dermatology Outpatient Office Dr. Uwe Kirschner, Mainz, Germany;* [5]*Departments of Dermatology, Venereology, Allergology and Immunology, Dessau Medical Center, Brandenburg Medical School Theodor Fontane and Faculty of Health Sciences Brandenburg, Dessau, Germany*

Background: Hidradenitis suppurativa (HS) is a chronic, inflammatory skin disorder affecting the pilosebaceous unit of the intertriginous body areas. Pain is one of the most important problems in patients suffering from HS.
Objectives and Methods: The aim of the study was to evaluate the prevalence and characteristics of pain among 1795 patients. The intensity of pain was assessed with the use of Numerical Rating Scale and HS severity with Hurley staging system and International Hidradenitis Suppurativa Severity Score System (IHS4). Additionally, pain intensity was correlated with various clinical features.
Results: Pain was reported by 83.6% of the subjects. The majority of patients (77.6%) experienced mild pain (3.9 ± 2.9 points); women and smokers tended to suffer from more intense pain ($p < 0.001$ and $p < 0.02$, respectively). Pain intensity was greater in patients with multiple skin areas affectation and correlated positively with the number of those areas ($r = 0.151$, $p < 0.001$). There was no difference in pain intensity between affected locations. The worst pain was observed in the patients with the most severe disease. The most severe pain was observed in the Hurley III group (4.9 ± 2.8 points), and it would significantly weaken with the HS severity, being at 3.9 ± 2.9 points for Hurley II group and at 2.9 ± 2.7 points for Hurley I patients. Similar findings were noted for IHS4 scoring system.
Conclusion: Pain is an important and frequent burden for patients suffering from HS. It should be emphasized, that during the treatment of the disease, clinicians should pay close attention to the management of accompanying pain sensation.
Acknowledgements: The Departments of Dermatology, Venereology, Allergology and Immunology, Dessau Medical Center, Dessau, Germany are health care providers of the European Reference Network for Rare and Complex Skin Diseases (ERN Skin).

P26 | Increased odds of central sensitization in patients with hidradenitis suppurativa; a cross-sectional case-control study

Pim Aarts; Jessie J. Aitken; Kelsey R. van Straalen
Department of Dermatology, Erasmus Medical Center, Rotterdam, Netherlands

Background: Chronic pain is one of the most prominent symptoms of hidradenitis suppurativa (HS). The chronic recurrent inflammatory nature of HS was hypothesized to induce central sensitization.
Objective: Therefore we aimed to determine the prevalence of central sensitization (CS) in patients with HS compared with controls.
Methods: A cross-sectional, survey-based, case-control study was conducted at the outpatient clinic of the Dermatology department at the Erasmus University Medical Center, in Rotterdam, the Netherlands. All consecutive adult patients with HS and age- and sex matched controls without chronic inflammatory disease were included from February to October 2020. The Central Sensitization Inventory (CSI) score (0-100) was used as screening tool for CS with a score of ≥40 suggesting the presence of CS.
Results: Overall, 100 HS patients and 100 age- and sex-matched controls were included, of which respectively 36% and 12% had a CSI score ≥40 ($p < 0.001$). Multivariate logistic regression showed that, controlled for possible confounders, patients with HS had 4.32 (95% CI 1.79-10.40) times the odds of having a CSI score ≥40 compared with controls. In addition within the HS population, CS was significantly associated with previously diagnosed depression (OR 10.18, 95% CI 3.66-28.34, $p < 0.001$) and AN-count (OR 1.18, 95% CI 1.00-1.38, $p < 0.05$).
Conclusion: Patients with HS were found to have over four times the odds of having central sensitization compared with age- and sex-matched controls. This new insight in the presence of central sensitization in HS patients raises the question whether we are adequately measuring and treating HS associated pain.
Acknowledgements: The Department of Dermatology, Erasmus Medical Center, Rotterdam, Netherlands is a health care provider of the European Reference Network for Rare and Complex Skin Diseases (ERN Skin).

P27 | Clinical features of pediatric- versus adult-onset hidradenitis suppurativa: results of a monocentric retrospective study

Antonella Di Cesare; Elia Rosi; Maria Thais Fastame; Stefano Senatore; Federica Ricceri; Francesca Prignano
Department of Health Sciences, Section of Dermatology, University of Florence, Florence, Italy

Background and Methods: We report our experience in pediatric onset of HS from January 2018 to December 2020. 149 HS patients (99 F, 50 M; mean age ± SD: 35.6 ± 14.5, median: 32, range 13-74). Among patients with pediatric onset of HS (cut-off of ≤16 years of

age) (46/149 patients, 30.9%; 36 F, 10 M), 15/46 (32.6%; 10F, 5M) had onset before the age of 12 years while 6/46 (13%; 4F, 2M) before the age of 8 years.

Results: Patients with pediatric onset had a mean duration of the disease of 13.3 ± 10.2 years (median 11, range 1-39) with a diagnostic delay of almost 7 years. Fourteen patients had a personal history of acne, 7/46 (15.2%) patients had a family history of HS, 26/46 (56.5%) were active smokers, 22/46 (47.8%) patients had a BMI≥25. Affected areas: inguino-femoral area (37/46, 80.43%), anogenital area (32, 69.6%), axillae (26, 56.5%), gluteal region (15, 32.6%), trunk (12, 26.1%), head/neck region (5, 10.9%). Inguino-femoral and anogenital area were significantly more frequent in patients with pediatric onset compared to adult onset. Indeed, patients with pediatric onset had a higher number of affected body areas (mean ± SD: 3 ± 1.5 pediatric onset *vs* 2.1 ± 1.1 adult-onset). The treatment approach included surgery or topical, systemic and biologic agents. Female patients with pediatric onset required the use of biologic therapies to improve compared to males.

Conclusion: Patients with pediatric onset of HS have more disseminated disease with more frequent involvement of anogenital and inguinal areas. Early recognition and treatment of the disease are mandatory in this subset of patients.

P29 | Prevalence of hidradenitis suppurativa in a population-based Dutch cohort

Lisette M. Prens[1]; Klasiena Bouwman[1]; Lisa Toelstra[1]; Errol P. Prens[3]; Behrooz Alizadeh[2]; Barbara Horváth[1]

[1]Dermatology, University Medical Center Groningen, Groningen, Netherlands; [2]Epidemiology, University Medical Center Groningen, Groningen, Netherlands; [3]Dermatology, Erasmus University Medical Centre Rotterdam, Groningen, Netherlands

Introduction: Hidradenitis suppurativa (HS) is a chronic auto-inflammatory skin condition affecting the upper part of de pilosebaceous unit and is associated with several comorbidities [1]. Previous studies report variable prevalence rates of HS, ranging from 0.02%[1] to 4.10%[2], however the exact prevalence remains unknown.

Objectives: To determine the prevalence of HS in a large population-based cohort in the Northern Netherlands, and to compare HS patients to the general population, investigate characteristics and identify potential associated comorbidities.

Methods: Data was collected through a cross-sectional survey-based study in the Lifelines Cohort Study, based on the general population located in the Northern Netherlands[3]. A digital questionnaire was developed consisting of validated questions for determining HS.

Results: The overall prevalence of HS was 2.1% [95% CI 2.0-2.2] among 56.089 respondents. Several new significant associations in HS patients were revealed, such as fibromyalgia [OR = 2.18; 95%CI 1.59 to 2.99], irritable bowel syndrome [OR 1.56; 95%CI 1.13 to 2.17], chronic fatigue syndrome [OR = 2.34; 95%CI 1.42 to 3.87] and migraine [OR = 1.63; 95%CI 1.23 to 2.17]. Fibromyalgia and chronic fatigue syndrome remained significantly associated with HS in the multivariate analysis after adjusting for age, sex, BMI and smoking status.

Conclusion: This study showed a higher prevalence of HS in the Netherlands and identified several new comorbidities, which were not previously linked to HS. This indicates that HS is subject to underdiagnosis and to an even more extensive comorbidity profile than previously assumed.

Acknowledgements: The Department of Dermatology, Erasmus Medical Center, Rotterdam, Netherlands is a health care provider of the European Reference Network for Rare and Complex Skin Diseases (ERN Skin).

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P40 | A systematic review of pain measurement in skin conditions and rheumatoid arthritis to inform validation of a pain instrument for hidradenitis suppurativa (HS)

Samar B. Hasan[1]; Riham Gendra[1]; Jabreia James[2]; Delyth Morris[3]; Lauren Orenstein[4]; John R. Ingram[1]

[1]Department of Dermatology, Cardiff University, Cardiff, UK; [2]Medical College of Georgia, Augusta, USA; [3]University Library Service, Cardiff University, Cardiff, UK; [4]Department of Dermatology, Emory University, Atlanta, USA

Introduction: Pain is the most commonly described symptom in HS. Pain visual analogue scale (VAS) and numeric rating scale (NRS) are frequently used to measure pain, however, there is a lack of detail regarding the method of utilizing these instruments in clinical trials and reporting of results.

Objective: To evaluate the method of pain measurement and reporting in painful skin conditions including HS, as well as rheumatoid arthritis (RA) as another example of a painful chronic inflammatory condition.

Methods: We conducted an extensive search on medical databases for randomised controlled trials (RCTs) enrolling 10 or more participants with pain as an outcome.

Results: 66% of trials involving painful skin conditions used Pain NRS or VAS to measure pain. The remainder used a diverse range of instruments. Most frequently specified recall window is 24 hours (21%), but in 67% the authors did not report the recall window. Participants were asked to report maximum pain intensity in 47% of the trials and average intensity in 5% while the rest did not mention how it was measured. 21% measured pain daily while the rest varied considerably in sampling frequency. The RCTs involving RA (n = 197) showed that most (87%) did not specify the recall window,

or whether the maximum intensity or average pain was measured (86%). Sampling frequency was daily in 4% and there was considerable variation in the rest (Table 1).

Conclusion: Our systematic review showed that while pain VAS/NRS are commonly used, there is substantial heterogeneity and incomplete reporting, limiting interpretation of results.

TABLE 1 Method used to report change in pain score during randomised controlled trials of painful skin conditions and rheumatoid arthritis

Reporting of pain outcomes	Painful skin conditions (n=50)	Rheumatoid arthritis (n=196)
Percentage of pain change from baseline	14% (7)	14% (28)
Mean difference (compared to baseline and/or placebo)	68% (34)	75% (147)
Percentage of patients reaching a desirable state	10% (5)	10% (20)
Relative risk reduction	2% (1)	0
Absolute risk reduction	0	0
The number needed to treat	2% (1)	2% (3)
Other	10% (5)	12% (23)

P49 | Stigmatization feeling in patients with hidradenitis suppurativa

Philippe Guillem[1,2]; Virginie Vlaeminck-Guillem[3,4]
[1]*Department of Surgery, Clinique Val d'Ouest, Lyon, France;* [2]*ResoVerneuil, Paris, France;* [3]*Lyon University, INSERM 1052, CNRS 5286, CRCL L. Berard Center, Lyon, France;* [4]*Department of Biochemistry, Hospices Civils of Lyon, Lyon Sud University Hospital, Lyon, France*

Background: Due to its intrinsic characteristics, HS is expected to be associated with stigmatization but data about this feeling are scarce.
Patients and Methods: 127 consecutive patients followed for HS were invited to fulfill questionnaires about pain (Visual Analogic Scale), quality of life (DLQI), alexithymia (Toronto Alexithymia Scale), and stigmatization (6-item Stigmatization Scale, 6-ISS), and an adapted version of the 33-Item Feelings of Stigmatization Questionnaire, initially developed for psoriasis (33-IFSQ). Groups (feeling of stigmatization or not) were compared using either Mann-Whitney (continuous variables), Chi2 or Fisher's exact test (proportions).
Results: As high as 86% of patients felt stigmatized (6-ISS≥6). 6-ISS significantly correlated with 33-IFSQ. Both scores strongly correlated with DLQI, and alexithymia. Stigmatization was not associated with the acute flare-associated pain but rather with the chronic and daily life pain. Besides smoking (associated with stigmatization), no correlation was observed with basic patients' characteristics (age, gender, family history) or disease (age at onset, disease duration, diagnostic delay) (Table 1). No correlation was observed with the topography of affected sites. None of the 2 scores was associated with Hurley stage but 6-ISS correlated with HS severity in terms of IHS4 and number of affected sites (linear regression, p = 0.013 and p = 0.011, respectively).
Discussion/Conclusion: This study strongly suggests how complex the mechanisms underlying stigmatization are. Some of them are nevertheless accessible to multidisciplinary medical management and should be considered for adequate decision making.

TABLE 1 Correlation between stigmatization scores and clinical variables in 127 patients with HS

	Whole cohort (n=127)	6-ISS [#]			33-IFSQ [&]		
		No stigmatization (n=18)	Stigmatization (n=109)	Significance [‡]	< 60 (n=24)	≥ 60 (n=103)	Significance [‡]
Female	70.9%	61.1%	72.5%	p=0.402	62.5%	72.8%	p=0.317
Age	33.1 ± 9.7	34.6 ± 12.1	32.8 ± 9.3	p=0.737	33.5 ± 11.6	33.0 ± 9.2	p=0.912
BMI	27.6 ± 6.0	26.5 ± 3.9	27.7 ± 6.3	p=0.796	27.6 ± 6.1	27.5 ± 6.1	p=0.931
Age at onset	20.4 ± 6.5	20.9 ± 8.2	20.4 ± 6.2	p=0.945	20.8 ± 7.0	20.4 ± 6.4	p=0.875
Disease duration	12.6 ± 9.4	13.7 ± 11.6	12.4 ± 9.1	p=0.865	12.8 ± 10.8	12.6 ± 9.2	p=0.824
Age at diagnosis	29.7 ± 9.2	33.6 ± 12.0	29.0 ± 8.5	p=0.156	30.4 ± 11.5	29.5 ± 8.6	p=0.939
Diagnostic delay	9.2 ± 9.2	12.7 ± 13.0	8.6 ± 8.3	p=0.588	9.8 ± 10.3	9.1 ± 8.9	p=0.656
Familial HS	17.3%	22.2%	16.5%	p=0.515*	19.7%	15.2%	p=0.501*
Current smokers	88.2%	66.7%	91.7%	***p=0.016****	82.0%	93.9%	p=0.019*
6-ISS	10.0 ± 3.5				7.8 ± 2.4	10.6 ± 3.5	***p=0.001***
33-IFSQ	81.0 ± 26.0	58.4 ± 25.9	84.7 ± 24.1	***p=0.004***			
DLQI	14.6 ± 6.9	8.9 ± 5.2	15.6 ± 6.7	***p=0.004***	8.5 ± 5.2	16.1 ± 6.4	***p=0.001***
TAS	55.3 ± 11.6	50.2 ± 9.7	56.4 ± 11.6	p=0.021	49.4 ± 11.9	57.0 ± 11.1	***p=0.018***
Pain today	3.2 ± 2.3	1.6 ± 1.7	3.5 ± 2.3	***p=0.008***	2.1 ± 2.4	3.5 ± 2.3	***p=0.014***
Pain max.	8.0 ± 1.9	7.7 ± 1.8	8.1 ± 1.9	p=0.352	7.3 ± 2.2	8.2 ± 1.8	p=0.018
Pain min.	1.4 ± 1.6	0.5 ± 1.0	1.6 ± 1.6	***p=0.012***	0.6 ± 1.3	1.7 ± 1.6	***p=0.007***
Hurley I	44.9%	66.7%	41.3%		33.3%	47.6%	
Hurley II	44.9%	33.3%	46.8%	p=0.100*	58.3%	41.8%	p=0.363*
Hurley III	10.2%	0%	11.9%		8.3%	10.7%	
IHS4	7.2 ± 8.3	2.9 ± 2.3	7.9 ± 8.7	***p=0.009***	4.8 ± 3.2	7.8 ± 9.0	p=0.3331

#: 6-ISS: 6 Item Stigmatization Score evaluating patients' perception of the way others look at them (rated as 1 for not at all, to 4 for always)

&: 33-IFSQ: 33 Item Feelings of Stigmatization Questionnaire (adapted from [3]: contains 33 items divided into six domains: anticipation of rejection (8 items), feeling of being flawed (6 items), sensitivity to the opinion of others (5 items), guilt and shame (5 items), positive attitudes (4 items), and sorretiveness (5 items). Each answer is scored on a scale from 0 ('definitively yes') to 5 ('definitively no'). The overall score can range from 0 to 165 points.

‡: continuous variable such as ages, duration and delay (years), BMI (kg/m²), scores (points) are given as mean ± standard deviation and were compared using Mann & Whitney test ; binomial (gender, family history of HS, smoking) or categorical (Hurley stage) variables were compared using Chi2 test (except those indicated by a '*', compared by a Fisher exact test due to theoretic numbers < 5) ; only p-values found significant after Bonferroni correction for multiple testing are indicated in bold and italics.

BMI: body mass index, DLQI: Dermatology Life Quality Index, HS: hidradenitis suppurativa, IHS4: International HS Severity Score System, TAS: Toronto Alexithymia Score, Pain max: maximal pain felt during a flare, Pain min: minimal pain felt between flares, Pain today: pain felt the day of the questionnaire

P57 | Reproductive desires in patients with hidradenitis suppurativa: therapeutic implications

Trinidad Montero-Vilchez; Luis Salvador-Rodriguez; Carlos Cuenca-Barrales; Salvador Arias-Santiago; Alejandro Molina-Leyva
Dermatology, Hospital Universitario Virgen de las Nieves, Granada, Spain

Background: There is scarce data available regarding the impact of hidradenitis suppurativa (HS) on fertility, course and outcome of pregnancy and risk associated with treatments.
Objective: The aim of this study is to describe the prescribed treatments in HS women based on the fulfillment of reproductive intentions.
Methods:. A prospective observational study that included all HS women of childbearing age who attended to our HS Clinic. Women were divided into two groups depending on the accomplishment of reproductive desires. Women with fulfilled reproductive desires are defined as women in childbearing age that are satisfied with the number of descendants achieved.
Results. The study included 104 women with HS of childbearing age, 50.96% (53/104) with unfulfilled reproductive desires. Intralesional corticosteroids were the most used treatment in both groups, followed by oral doxycycline, oral contraceptives and oral clindamycin. The only treatment in the X category, acitretin, was prescribed less in woman with unfulfilled reproductive desires. The prescription rate for category D treatments (doxycycline, levonorgestrel-releasing intrauterine system, spironolactone and systemic corticosteroids) was similar between groups. Combined oral contraceptives were more frequently prescribed in women with unfulfilled reproductive desires (30.19% vs 9.80%, p = 0.013). Biologics were used more in women with fulfilled reproductive desire 13.73% (7/51) vs. 3.77% (2/53), p = 0.08, both adalimumab and infliximab.

Conclusion. This study could help clinicians achieve a better understanding of the specific characteristics of HS during childbearing age and consider reproductive desires when making treatment decisions.

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P68 | Pregnancy outcomes in patients with hidradenitis suppurativa

Rachel Tannenbaum[1]; Laura Fitzpatrick[1]; Jennifer Hsiao[2]; Andrew Strunk[1]; Amit Garg[1]
[1]*Dermatology, Zucker School of Medicine at Hofstra Northwell, Lake Success, USA;* [2]*Dermatology, University of California Los Angeles School of Medicine, Los Angeles, USA*

Background: Hidradenitis suppurativa (HS) disproportionately affects women of childbearing age, and yet the influence of HS on pregnancy outcomes has not been established.
Objectives: To estimate frequency of adverse pregnancy outcomes in patients with HS compared with the general population.
Methods: This retrospective cohort study used a validated algorithm to identify pregnancies in women aged 12-55 years within the Explorys database between January 1, 2011 and September 30, 2015. The primary outcomes were incidence of spontaneous abortion, cesarean section, preterm birth, stillbirth, gestational hypertension, gestational diabetes mellitus, and preeclampsia. Results were compared across unadjusted, demographics-adjusted, and full comorbidity-adjusted generalized estimating equation models to evaluate the relationship between HS and each outcome, and to assess influence of comorbid confounders on associations.
Results: We identified 1862 pregnancies among women with HS and 64 218 control pregnancies meeting eligibility criteria. Pregnant women with HS had increased crude risk of each of the studied outcomes compared to controls. Some associations were attenuated after controlling for demographics and comorbidities. However, a statistically significant association remained between HS and spontaneous abortion [OR 1.20 (1.04-1.38), p = 0.01], cesarean section [OR 1.09 (1.004-1.17), p = 0.04], and gestational diabetes mellitus [OR 1.26 (1.07-1.48), p = 0.05] in comorbidity-adjusted models.
Conclusion: Risk of adverse pregnancy outcome is increased in women with HS, although part of this risk is attributable to comorbidities.

P78 | Hidradenitis suppurativa (HS) does not always begin in youth: clinical characteristics of 16 late-onset HS patients

Maïa Delage-Toriel[1]; Catherine Pierre-Audigier[1]; Kaoutar Jidar[1]; Paul-Henri Consigny[1]; Alain Hovnanian[3]; Olivier Join-Lambert[2]; Aude Nassif[1]
[1]*Pasteur Institute, Medical Center, Paris, France;* [2]*Department of Microbiology, Caen University, Caen, France;* [3]*Imagine Institute and Necker-Enfants Malades Hospital, Génétique des Maladies Cutanées, Paris, France*

Introduction: The classical onset age of hidradenitis suppurativa (HS) is around 22 years [1]. However, a later onset has been recently reported [2].
Methods: We retrospectively studied late-onset (above 40 years old) patients in our patient-list of 600 HS patients followed between 2016 and 2020 at Pasteur Medical Center.
Results: 16 patients were retrieved (Table 1). Mean onset age was 44 (40-53). Patient characteristics are described in table 1. 81% patients had a personal or familial inflammatory predisposition, with personal comorbidities including psoriasis, inflammatory rheumatism, periodontitis and mastitis and familial background including HS, psoriasis, Crohn disease, pilonidal cyst, inflammatory rheumatism, mastitis and dissecting cellulitis of the scalp. We noticed that 87% had a co-factor such as systemic NSAID or steroid intake or/and a weight gain above 10% or/and diabetes.
Discussion: We identified a late onset in 2.6% of our patients. This proportion is lower than in a previous publication (20.8%) [2]. This may be explained by recall bias when patients describe their first lesions. Besides, we observed a high number of patients with an inflammatory background, a variety of Hurley stages and an important presence of co-factors. A control group is mandatory to draw any conclusions on these characteristics.
Conclusion: HS onset can occur later than usually reported. This late-onset sub-group needs to be further characterized, in order to determine any genetic or triggering factors.

TABLE 1 Demographics of late onset HS patients

	Number of patients	Percentage (%)
Women	9	56
IMC > 25	9	56
tobacco	13	81
Hurley Stage 1	6	37
Hurley Stage 2	4	25
Hurley Stage 3	6	37
Personal inflammatory comorbidities	7	44
Familial HS history	7	44
Familial inflammatory comorbidity including HS	12	75
Personal or Familial inflammatory background	13	81
NSAID/ steroid intake	9	56
diabetes	5	31
Weight gain > 10%	5	31
At least one co-factor	14	87

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P83 | Risk of chronic kidney disease in patients with hidradenitis suppurativa

Nouf Almuhanna[1,2]; Sheldon Tobe[1]; Raed Alhusayen[1]
[1]*Dermatology, University of Toronto, Toronto, Canada;* [2]*Dermatology, King Fahad Medical City, Riyadh, Saudi Arabia*

Background: Hidradenitis suppurativa (HS) is associated with several comorbidities such as hypertension, diabetes mellitus, and cardiovascular diseases. These comorbidities are also risk factors for chronic kidney disease (CKD), yet little is known about the risk of CKD in HS patients.
Objectives: To study the prevalence of CKD in HS patients and to determine the strength of association.
Methods: We performed a case-control population-based study using the united states national inpatient sample database, between January 1, 2002, to December 31, 2012.The primary endpoint is the diagnosis of CKD under ICD-9 code 585, 585.1, 585.2, 585.3, 585.4, 585.5, 585.6, 585.9.
Results: We identified 23 767 HS patients and 95 068 age and gender matched controls. The prevalence of CKD in HS patients was 6.3% (1497/23 767) compared to non-HS controls 4.3% (4052/95 068). The association of CKD was strongest in HS patients who were ≥60 years old 16.9% (475/2811), non-white 6.8% (1067/15 737), male 7.3% (695/9556), obese 7.8% (407/5209), diabetic 12.5% (890/7105), hyperlipidemic 13.3% (416/3126), had cardiovascular diseases 12.5% (631/5045), and non-smoker 7.1%(1206/17 080). The crude odds ratio of CKD in HS patients was 1.5 (95% CI 1.420-1.605) compared to non-HS patients. The association remained significant after adjusting for important covariates with adjusted odds ratio of CKD in HS patients of 1.1 (95% CI 1.014-1.176) compared to non-HS patients.
Limitations: We could not identify the degree of HS severity.
Conclusion: Our findings show that HS is associated risk of CKD.
Acknowledgements: We would like to thank Priscilla Gikandi, Bsc,MPH, for her assistance with the data analysis.

P99 | Prevalence of depression among children, adolescents, and adults with hidradenitis suppurativa

Rachel Tannenbaum; Shari Wright; Andrew Strunk; Amit Garg
Dermatology, Zucker School of Medicine at Hofstra Northwell, New York, NY, USA

Background: Hidradenitis suppurativa (HS) is a chronic inflammatory skin disease with physical symptoms associated with significant psychosocial impairment and decreased health and skin-specific quality of life. While HS patients are at an increased risk of developing depression, prevalence estimates for depression among HS patients are highly variable and poorly characterized in populations, particularly in the pediatric age group.
Objectives: To compare prevalence of depression among children, adolescents, and adults with HS with that of controls without HS.
Methods: This was a cross-sectional study of patients 10-89 years within the Explorys database between January 1, 2018 and December 31, 2019. Primary outcome of interest was current diagnosis of depression in 2019 or 2018. Separate analyses were performed for patients aged 10-17 years and 18-89 years. Prevalence of depression between HS patients and controls was compared using a conditional logistic regression model.
Results: We identified 38 140 adult and 1162 pediatric patients with HS. Prevalence of depression among adults with HS was 30.0% (95% CI, 29.6-30.5), compared with 16.9% (95% CI, 16.7-17.1) among controls. Prevalence of depression among pediatric HS patients was 11.7% (95% CI, 10.0-13.7), compared with 4.1% (95% CI, 3.6-4.7) among controls. After adjusting for demographic and clinical covariates, adults and children/adolescents with HS had 1.26 (95% CI, 1.25-1.28; $p < 0.001$) and 1.42 (95% CI, 0.999-2.01; $p = 0.0505$) times the odds of having depression, respectively.
Conclusion: Prevalence of depression among pediatric and adult patients with HS is high and thus may warrant routine screening measures.

P113 | An educational film to explain hidradenitis suppurativa to patients and non physician careproviders - A nurse initiative

Christelle Perat[1]; Philippe Guillem[1,2]
[1]*Department of Surgery, Clinique du Val d'Ouest, Lyon, France;* [2]*RésoVerneuil, Paris, France*

Background: Besides pain, pruritus, odor, discharges, sexual impairment, and other major complaints, patients with HS also suffer from the usual ignorance that the general public and healthcare professionals have of their disease. They frequently evoke the double punishment of having to fight against a potentially very disabling disease and against the ignorance of those who must provide them with care and support. Conversely, many caregivers complain that they are not sufficiently informed and armed to provide this help. Nurses are, for example, one of the caregivers whose primary training usually gives

them no idea of the disease, while they are often the first-line caregivers, both at home and in hospital.

Objectives, Methods and Discussion: It therefore appears crucial to offer patients and non-physician caregivers the tools that will help them in all aspects of the HS patient journey: diagnostic remediation, referral to a specialist, technical nursing care, supportive care and therapeutic education. These tools need to be tailored to those who use and receive them and we assumed that an academic course would probably not be the best channel of communication. In this perspective, the nurse of a center specializing in the care of HS patients imagined and produced by herself a film explaining, with simple words and diagrams, what the disease is, as well as the methods of diagnosis and treatment (Figure 1).

Conclusion: The film (French/English) is presented here as an example of a nurse's initiative for patients, and for validation before broadcasting on various audiovisual media.

FIGURE 1 Some representative images from the film

P119 | Pain in hidradenitis suppurativa correlates with disease severity but also with gender and smoking

Farida Benhadou[1,2]; Axel P. Villani[3,4]; Philippe Guillem[2,5,6]
[1]*Dermatology, Université Libre de Bruxelles, Erasme Hospital, Brussels, Belgium;* [2]*ResoVerneuil, Paris, France;* [3]*Dermatology, Hospices Civils de Lyon, Hôpital Edouard Herriot, Lyon, France;* [4]*Université Claude Bernard Lyon I, Lyon, France;* [5]*Groupe HS-France de la Société Française de Dermatologie, Paris, France;* [6]*Department of Surgery, Clinique du Val d'Ouest, Lyon, France*

Background: Pain is the main complaint of patients with HS.

Objectives and Methods: We conducted a prospective study recording maximal pain during (Pmax) and minimal pain between flares (Pmin) in 1022 HS patients (female; 65%; mean age: 32 ± 10).

Results: Mean Pmax and Pmin were 7.7 ± 2.1 and 1.1 ± 1.8 (VAS 0-10) and both scores were linearly correlated ($p < 0.001$). Both scores correlated with DLQI (both: $p < 0.001$). Univariate analyses correlated Pmax with gender (females/males: 7.8 ± 2.0 *vs* 7.4 ± 2.2, $p = 0.014$), younger age at disease onset ($p = 0.027$), younger age at diagnosis ($p = 0.018$), smoking (active smokers/others: 7.8 ± 2.1 *vs* 7.2 ± 2.1, $p < 0.001$), involvement of pubis (8.0 ± 2.0 vs 7.6 ± 2.1, $p = 0.006$) and inner thighs (8.0 ± 1.8 vs 7.6 ± 2.2, $p = 0.008$). Pmin correlated with higher BMI ($p = 0.0197$), reduced diagnostic delay ($p = 0.012$), and axillary involvement (1.2 ± 1.9 vs 0.9 ± 1.6, $p = 0.008$). Both correlated with Hurley stage (Pmax: 7.4 vs 7.9 vs 7.9; Pmin: 0.9 vs 1.2 vs 2.0; both $p = 0.001$) and number of affected sites (both $p < 0.001$). Multivariate analysis revealed that female gender, active smoking and Hurley stage were all independent predictors of Pmax. Female gender, Hurley stage and reduced diagnostic delay proved to be independent predictors of Pmin.

Conclusion: We conclude that neither the number nor the nature of the affected sites significantly influence pain. Association between reduced diagnostic delay and Pmin suggests that chronic rather than acute pain prompts patients to consult. Apparition of fistulas (Hurley II/III vs Hurley I) seems an important triggering factor of pain. The apparent gender-related difference may reflect difference in pain perception or expression. The direction of the smoking-pain association remains to be determined.

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P129 | A comprehensive, patient-based approach to the clinical and molecular classification of complex, syndromic hidradenitis suppurativa phenotypes: a practical, translational framework

Chiara Moltrasio[1,2]; Giovanni Genovese[1,3]; Sergio Crovella[7]; Paola M. Tricarico[4]; Michele Boniotto[5]; Simone Garcovich[6]; Angelo V. Marzano[1,3]
[1]*Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico, Milan, Italy, Dermatology Unit, Milan, Italy;* [2]*Department of Medical Surgical and Health Sciences, University of Trieste, Trieste, Italy;* [3]*Department of Physiopathology and Transplantation, Università degli Studi di Milano, Milan, Italy;* [4]*Institute for Maternal and Child Health, IRCCS "Burlo Garofolo", Trieste, Italy;* [5]*Univ Paris Est Creteil, INSERM, IMRB, Creteil, France;* [6]*Institute of Dermatology, Policlinico Gemelli IRCCS, Università Cattolica del Sacro Cuore, Rome, Italy;* [7]*Department of Biological and Environmental Sciences, University of Qatar, Doha, Qatar*

Background: Hidradenitis suppurativa (HS) is a chronic inflammatory disease presenting with nodules, abscesses and fistulas on the apocrine gland-bearing skin. Rarely syndrome-like presentation of HS consisting of several inflammatory disorders may occur.

Objectives and Methods: We propose an optimized diagnostic framework for syndromic HS and patients with related complex phenotypes including the following steps: (I) clinical work-up, (II) molecular work-up, (III) mechanistic studies; (IV) genotype-phenotype correlation and translation in personalized therapeutic approaches.

Results: I. Clinical work-up with collection of demographic, clinical data and tissue specimens. Full-skin examination, use of traditional digital photography as well as in-vivo, non-invasive skin imaging (high frequency ultrasound imaging, thermography, topographic 3D skin imaging) are required. Histology of lesional skin is important for differential diagnosis of complex phenotypes. Specimen collection and biobanking involve accurate sampling strategies of lesional-perilesional-healthy control skin, from skin biopsies or resected tissues specimens, and from other tissues (serum, peripheral blood mononuclear cells, saliva). II. Genetic-molecular work-up is based on study of familial pedigrees and Next Generation Sequencing approaches (e.g., genomics and transcriptomics). III. Mechanistic studies of candidate molecular biomarkers derived from genetic steps is necessary to validate novel molecular findings in complex syndromic HS phenotypes. These studies involve tissue in-situ expression techniques (immunofluorescence) on patient samples as well as ex-vivo models (cell cultures, reconstructed epidermal models). IV. Genotype-phenotype correlation is a final step to integrate clinical, genetic ad molecular data in a cohesive model based on individual patient.

Conclusion: Novel pathophysiological concepts are then translated in a personalized therapeutic plan for each patient.

P131 | Identification of clinical categories in hidradenitis suppurativa based on clinical patient characteristics: results from a cluster analysis

Angelique Rondags[1]; Suzanne Arends[2]; Rob J. Volkering[1]; Ineke C. Janse[3]; Janine L. Dickinson-Blok[4]; Eldrid L.C. Schoonhoven[1]; Hendrika Bootsma[2]; Anneke Spoorenberg[2]; Barbara Horváth[1]

[1]Department of Dermatology, University of Groningen/University Medical Center Groningen, Groningen, Netherlands; [2]Department of Rheumatology and Clinical Immunology, University of Groningen/University Medical Center Groningen, Groningen, Netherlands; [3]Department of Dermatology, Meander Medical Center, Amersfoort, Netherlands; [4]Department of Dermatology, Hospital Nij Smellinghe, Drachten, Netherlands

Background: Suggested is that hidradenitis suppurativa (HS) is a skin disease with a certain phenotypic heterogeneity, which possibly indicates different etiologic, pathophysiologic and genetic backgrounds that require tailored treatment approaches. Robust description of HS phenotypes does not yet exist.

Objectives: To identify distinct clinical categories of HS patients based on associated clinical patient characteristics.

Methods: Cross-sectional study. Cluster analysis was performed on two prospective, longitudinal and observational cohorts including adult HS patients seen in three centres in the Netherlands (2015-2017). Clinical variables included were sex, smoking history, BMI, and follicular occlusion comorbidity.

Results: n = 345 HS patients: 72.8% female, mean age 38.3 ± 12.2 years, mean symptom duration 15.4 ± 11.7 years, mean BMI 29.0 ± 6.3 kg/m^2, and 82.3% was ever a smoker. Five distinct clinical sub-categories of HS were revealed: 1. "females with stereotypical HS" (40.0%) describes female smokers with overweight; 2. "females with a single exogenous risk factor for HS" (22.6%) are females that either have a positive smoking history or are overweight; 3. "male HS" (22.0%) represents male patients who have a positive smoking history and/or are overweight; 4. "HS plus follicular occlusion comorbidity" (9.2%) is defined by HS patients who are also known with acne conglobata, dissecting cellulitis of the scalp and/or pilonidal sinus; and 5. "limited HS" (6.1%) typifies HS patients without associated risk factors smoking, high BMI and follicular occlusion tetrad comorbidities.

Conclusion: These clinical sub-categories of HS may help to define sound HS phenotypes.

Acknowledgements: We thank all the patients with HS who are participating in the HiSURE and HiCARE cohorts.

P140 | Superficial and deep sampling of the skin microbiome in hidradenitis suppurativa

Christine B. Ardon[1]; Luba Pardo Cortes[1]; Robert Kraaij[2]; Kelsey R. van Straalen[1]; Errol P. Prens[1]

[1]Dermatology, Erasmus Medical Center, University Medical Center Rotterdam, Rotterdam, Netherlands; [2]Internal Medicine, Erasmus Medical Center, University Medical Center Rotterdam, Rotterdam, Netherlands

Background: The skin microbiome is thought to have an important role in both triggering the immune response as well as the chronic, endless cycle of inflammation in hidradenitis suppurativa (HS). Imbalances in skin microbiota can induce aberrant interactions between the host immune system and the skin microbiome in HS. Sampling the microbiome at different levels in the skin could shed light in the pathogenesis of HS.

Objectives: We aimed to assess the composition of the microbiome of lesional HS skin obtained through lesional swabs, superficial and deep biopsies taken from one lesion.

Methods: All samples were investigated with 16s rRNA gene PCR amplification and sequencing using V1-V3 region. **Results:** Thirty-two patients with chronic, active disease were included. A significant difference was found in the microbiome composition per sample type. Increased relative abundance was seen at phylum level for Bacteroidetes and Proteobacteria in deep biopsies compared to swabs. Additionally, a reduction of Firmicutes was seen within the deeper layers of HS skin. At genus level, increased relative abundance was found for Prevotella and Porphyromonas in deep biopsies versus swabs. Multivariate analysis showed that the variation of the microbiome could be explained by the sampling method between 15% to 7%, from phylum to genus respectively. Location, sex, BMI,

severity and smoking also contributed significantly to the variation of the microbiome.

Conclusion: This study suggests differences in microbiome composition per sample method. For future studies, pending on the research question, we recommend using both swabs and biopsy samples in HS patients with measuring multiple time points.

Acknowledgements: The Department of Dermatology, Erasmus Medical Center, Rotterdam, Netherlands is a health care provider of the European Reference Network for Rare and Complex Skin Diseases (ERN Skin).

P149 | The first affected site in hidradenitis suppurativa both suggests specific disease-triggering factors and predicts disease outcome

Axel P. Villani[1,2]; Farida Benhadou[3,4]; Philippe Guillem[4,5]
[1]*Department of Dermatology, Université Claude Bernard Lyon 1 - Hospices Civils de Lyon - Hôpital Edouard Herriot, Lyon, France;* [2]*Groupe HS France de la Société Française de Dermatologie, Paris, France;* [3]*Department of Dermatology, Erasme Hospital, Université Libre de Bruxelles, Brussels, Belgium;* [4]*RésoVerneuil, Paris, France;* [5]*Department of Surgery, Clinique du Val d'Ouest, Lyon, France*

Background: Little is known about how the first symptoms of HS can influence or predict disease course.

Objectives and Methods: We investigated the links between HS clinical manifestations/severity and the first affected site in this cross-sectional monocentric study, including 1653 patients. Using site-by-site multivariate logistic regression, we showed that gender, BMI, age at disease onset and smoking, but not family history of HS nor latent inflammatory state, were independent predictors of the first affected site 1stAS (Table 1).

Results: The 1stAS did not predict deterioration in QoL (DLQI, pain) nor the delay for HS diagnosis. It was significantly correlated with secondarily affected sites (Table B). For example, when the 1stAS was the inner thighs, the risk of developing inguinal and intergluteal lesions was reduced while the risk of future breast lesions was increased ($p \leq 0.011$). Intergluteal fold, as the 1stAS, was predictive of an increased risk of anogenital lesions. Disease severity was significantly correlated to the 1stAS: the risk of developing fistulas (Hurley II/III) was increased when the 1stAS was the armpits or intergluteal fold, and reduced for the inguinal or the gluteal area. The risk of future Hurley III was increased when the 1stAS was the intergluteal area and decreased for the groins or the inner thighs. Significant correlations were observed between the 1stAS and the number of affected sites.

Conclusion: 1stAS like armpits and intergluteal fold involvement are associated with increased severity in HS (Hurley stage III) course. When observed in the early development of HS, these locations may benefit from an intensified treatment.

Acknowledgements: The Department of Dermatology, Erasme Hospital, Université Libre de Bruxelles, Brussels, Belgium is a health care provider of the European Reference Network for Rare and Complex Skin Diseases (ERN Skin).

TABLE 1 Clinical variables associated with the first affected site

	First affected site (whole cohort : n = 1653) **								
	Inguinal n = 457 (29%)	Axillary n = 410 (25%)	Intergluteal n = 208 (13%)	Gluteal n = 136 (8%)	Inner thighs n = 79 (5%)	Neck n = 66 (4%)	Breast n = 60 (4%)	Anogenital n = 60 (4%)	Others n = 147 (9%)
A- Factors that could influence the site of the first HS lesion									
Independent predictors of the 1st affected site	Female gender Lower BMI	Male gender Higher BMI Later onset No smoking	Male gender Higher BMI Earlier onset Smoking	Male gender Lower BMI	Higher BMI	Male gender Earlier onset	Female gender Higher BMI	Later onset	Male gender Lower onset
B- Elements of the phenotype that could be secondarily influenced by the first site affected									
Secondary afftected sites significantly predicted by the 1st one	Axillary (-) Intergluteal (-) Inner thighs (-) Neck (-) Others (-)	Inguinal (-) Intergluteal (-) Inner thighs (-) Anogenital (-)	Inguinal (-) Anogenital (+)	Inguinal (-) Axillary (-) Intergluteal (-) Breast (-)	Inguinal (-) Intergluteal (-) Breast (+)	/	Anogenital (-)	Axillary (-) Breast (-)	/
Risk of developing fistulas (Hurley II/III vs Hurley I; OR*)	0.65 (p < 0.001)	1.62 (p < 0.001)	1.70 (p < 0.001)	0.59 (p = 0.004)	/	/	/	/	/
Risk of developing Hurley III disease (vs Hurley I/II; OR*)	0.49 (p < 0.001)	/	1.77 (p = 0.007)	/	0.31 (p = 0.017)	/	/	/	/
Risk of having ≥ 4 affected sites	0.69 (p < 0.001)	0.53 (p < 0.001)	0.69 (p < 0.001)	/	1.86 (p = 0.008)	1.96 (p = 0.008)	/	/	2.71 (p < 0.001)

Table A: Site-by-site multivariate logistic regressions to identify independent predictors of the first affected site in hidradenitis suppurativa (HS)
Variables assessed by the model: gender, body mass index (BMI), family history of HS, age at disease onset, active smoking before disease onset, inflammatory context (presumed by secondary development of an inflammatory joint and/or bowel disease)

Table B: Elements of the phenotype that could be secondarily influenced by the first site affected
Secondary affected sites significantly predicted by the 1st one: indicated are those sites that secondary involvement is predicting to be more likely (+) or less likely (-) if the site is affected in first. Only statistically significant risk are indicated. For example, if inner thighs are the first site affected, the risk of developing inguinal and intergluteal lesions are significantly reduced while the risk of breast involvement is significantly increased.

**: OR: odds ratio*
***: Neck was considered involved if lesions occurred in the neck itself, the back neck and/or the retroauricular fold; breast was considered involved if lesions occurred in the submammary and/or the intermammary folds; anogenital region was considered involved if lesions occurred in the genitalia, the perineum and/or the anal region.*

P152 | Two cases of hidradenitis suppurativa in literature: the Colonel Aureliano Buendia from '*One hundred years of solitude*' and his author Gabriel Garcia Marquez

Philippe Guillem[1,2]
[1]*Department of Surgery, Clinique du Val d'Ouest, Lyon, France;* [2]*RésoVerneuil, Paris, France*

Background: Gabriel Garcia Marquez (1927-2014) was a Colombian journalist and novelist. 'Gabo' is considered as a major Spanish-native writer and was awarded the 1982 Nobel Prize of Literature for all of his work. His magnum opus, *Cien años de Solidad*, has largely contributed to the international celebration of his unique talent.

Objectives and Methods: It tells, in a specific style (called after Gabo magic realism) the story of a whimsical Colombian family over several generations.

Results: One of the character is Colonel Aureliano Buendia, who recurrently suffers from '*golondrinos*' (literal translation: swallows) in the armpits. '*Golondrinos*' is in fact a popular Spanish name given to HS in reference to the pain that causes the patient turn around with the arms outstretched, like the wings of the bird (unless it is related to the fact that these birds keep coming back?). Gabo gave some precise descriptions of the flare-related pain, a precision which suggests that he has been confronted with the disease. In fact, the writer admitted later, during a conference on literary creation, that he himself suffered from 'painful boils in the armpits - which kept recurring'. He even explained what '*golondrinos*' means, why he gave HS to his character ('to give him a great handicap') and how his own armpit swelling disappeared 'for good' when he finished to give it to Colonel Aureliano Buendia.

Conclusion: Besides representing a rare description of HS in literature, Gabo's *golondrinos* offer a unique opportunity to evaluate how a debilitating condition such as HS could influence artistic creation.

Basic and Translational Experimental Research (Genetics, Immunology, Biomarkers Comorbidities, Registries)

118 | Biomarkers in hidradenitis suppurativa

Andrea Szegedi
Department of Dermatology, University of Debrecen, Debrecen, Hungary

Background: Hidradenitis suppurativa (HS) is a chronic disabling inflammatory disease of the follicular unit, especially affecting apocrine gland-bearing skin areas.
Objectives: Since the clinical picture of HS is evidently heterogeneous, objective laboratory and imaging biomarkers would be very useful to determine prognosis, staging, severity or treatment effectivity.
Methods, Results and Conclusion: Although there is an unmet need for biomarkers in HS, and several studies were conducted in order to determine them, presently no reliable, cheap, easily available biomarker of HS is used in the everyday practice, when treating this patient group. In the present lecture the most promising results of research on this area will be covered. First the so called general inflammation markers (CRP, ESR, SAA etc.), then the general immune activation markers (sIL2R) and the HS pathogenesis specific markers (IL-17, TNF, etc.) in the serum will be discussed. At the end skin tissue markers will also be mentioned, which can help us to better understand disease pathogenesis.
Acknowledgements: The Department of Dermatology, University of Debrecen, Debrecen, Hungary is a health care provider of the European Reference Network for Rare and Complex Skin Diseases (ERN Skin).

111 | Involvement of the innate immune system in the hidradenitis suppurativa pathogenesis

Sophie Hüe
UPEC, INSERM U955 team 16, CRETEIL, France

Background: The excessive inflammatory response observed in HS skin is thought to be triggered by a combination of genetic, immunological and environmental factors. Genetic studies of HS were supported by the observation that 30-40% of HS patients have at least one family member who is affected. Genetic studies identified mutations in γ-secretase, a transmembrane protease complex involved in type I membrane protein cleavage in 10% of patients with history family. To date, more than 30 mutations have been described in NCSTN encoding Nicastrin, a subunit of γ-secretase [1].
Methods and Results: In several manipulated cell-line models characterized by NCSTN inactivation, keratinocyte proliferation and differentiation were severely impaired. Hair follicle keratinocytes produce more proinflammatory cytokines and have an altered pattern of antimicrobial peptide production [2]. Impaired hair follicular stem cells homeostasis leading to an increased proliferation induces stress replication and stimulates type I IFN production with participates to the strong inflammatory skin reaction [3]. In combination with the strong type I signature in HS skin, increased formation of neutrophils extracellular traps (NET) and NET-related antigens contribute to immune dysregulation [4]. Sera from HS patients recognized antigens present in NET and autoantibodies against citrullinated and extracellular matrix proteins. B cells dysregulation as evidence by elevated plasma cells and IgG was associated with complement activation suggesting a potential pathogenicity [5].
Conclusion: All these recent evidences suggest a key involvement of the innate immune system in the HS pathogenesis.
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160 | Stage-dependent autoantibodies and promotion of proinflammatory cytokines in hidradenitis suppurativa

Carmelo Carmona-Rivera[1]; Liam J. O'Neil[2]; Eduardo Patino[1]; William D. Shipman[3]; Chengsong Zhu[4]; Quan-Zhen Li[4]; Michelle L. Kerns[5]; Leandra A. Barnes[6]; Mariana J. Kaplan[1]; Ginette A. Okoye[5,7]; Angel S. Byrd[5,7]
[1]*National Institute of Arthritis and Musculoskeletal and Skin Diseases, National Institutes of Health, Systemic Autoimmunity Branch, Bethesda, USA;* [2]*Department of Internal Medicine, University of Manitoba, Winnipeg, Manitoba Centre for Proteomics and Systems Biology, Winnipeg, Canada;* [3]*Weill Cornell/Rockefeller/Sloan-Kettering Tri-Institutional MD-PhD Program, New York, USA;* [4]*Department of Immunology and Microarray Core Facility, University of Texas Southwestern Medical Center, Dallas, USA;* [5]*Department of Dermatology, Johns Hopkins University School of Medicine, Baltimore, USA;* [6]*Stanford University School of Medicine, Stanford, USA;*

[7]Department of Dermatology, Howard University College of Medicine, Washington, MA, USA

Background: Hidradenitis suppurativa (HS), also known as acne inversa, is a debilitating inflammatory skin disorder of unknown etiology. HS is characterized by abscess-like nodules and boils resulting in sinus tracts and tissue scarring as it progresses from Hurley Stage I to III. HS has been associated with several autoimmune diseases including inflammatory bowel disease (IBD) and spondyloarthritis.
Objectives: We have previously reported dysregulation of the innate and adaptive immune system, presence of antibodies against citrullinated proteins, and increased total IgG in HS patients.
Methods and Results: Herein, we sought to systematically characterize IgG autoreactivity in HS specimens using an array-based high-throughput autoantibody screening by analyzing twenty-one sera and twenty-five skin lesion samples. Cy3-labeled anti-human assay showed the presence of autoantibodies against nuclear antigens, cytokines, cytosolic proteins, extracellular matrix proteins, neutrophil proteins, and citrullinated antigens. Most of these autoantibodies were significantly elevated in Stage II-III in HS sera and Stage III in HS skin lesions. Furthermore, immune-complexes containing native and citrullinated version of histones activate macrophages to release pro-inflammatory cytokines such as TNF-alpha and IL-8.
Conclusion: Taken together, the novel identification of potential pathogenic IgG antibodies in HS patient sera and skin lesion expands the understanding of HS pathogenesis to likely include an autoimmune mechanism and optimizes potential therapeutic targets.

72 | No evident systemic terminal complement pathway activation in hidradenitis suppurativa

Lisette M. Prens[1]; Christine B. Ardon[2,3]; Kelsey R. van Straalen[2,3]; Hessel H. van der Zee[2]; Marc A.J. Seelen[4]; Jon D. Laman[5]; Errol P. Prens[2,3]; Barbara Horváth[1]; Jeffrey Damman[6]
[1]Department of Dermatology, University Medical Center Groningen, Groningen, Netherlands; [2]Department of Dermatology, Erasmus University Medical Center, Rotterdam, Netherlands; [3]Laboratory for Experimental Immunodermatology, Erasmus University Medical Center, Rotterdam, Netherlands; [4]Department of Nephrology, University Medical Center Groningen, Gronignen, Netherlands; [5]Department Biomedical Sciences of Cells & Systems, University Medical Center Groningen, Groningen, Netherlands; [6]Department of Pathology, Erasmus University Medical Center, Rotterdam, Netherlands

Background: Higher levels of C5a and soluble C5b-9 (sC5b-9) in plasma of HS patients have previously been reported, indicating systemic late phase complement pathway activation in HS. However, this finding in HS is remarkable, since elevation of other markers of systemic activation, such as CRP and IL-6, is rare in HS.
Objectives and Methods: We aimed to assess systemic complement activation in plasma of 76 HS patients and 10 controls by quantifying the levels of C3, C3d, C5a, and sC5b-9.
Results: Even though median plasma C3 concentrations for HS patients and controls were within normal range, significantly higher levels of C3 were found in Hurley I patients, compared with both controls (p = 0.03) and Hurley II patients (p = 0.02). Overall, compared with controls, HS patients had significantly higher plasma levels of C3d, with higher levels in Hurley I (median 7.0 μg/mL), than in Hurley II (median 3.7 μg/mL; p < 0.001) and Hurley III patients (median 3.8 μg/mL; p = 0.04). Across all three Hurley stages the C3d/C3 ratios were significantly higher among HS patients than controls. Circulating levels of C5a and sC5b-9 were in the low to normal range in HS patients and were not significantly increased relative to controls.
Conclusion: Our results do not support a prominent role for systemic complement activation in the pathogenesis of HS. The absence of evident systemic terminal pathway activation argues against the potential benefits of therapeutic intervention in the C5a-C5aR1 axis, the therapeutic target of two (ongoing) clinical trials. However, involvement of local complement involvement needs to be further investigated.
Acknowledgements: The Department of Dermatology, Erasmus University Medical Center, Rotterdam, Netherlands is a health care provider of the European Reference Network for Rare and Complex Skin Diseases (ERN Skin).

84 | The dose-response relationship between tobacco smoking and hidradenitis suppurativa

Axel P. Villani[1,2]; Lea Donzier[1]; Farida Benhadou[3,4]; Philippe Guillem[4,5]
[1]Department of Dermatology, Université Claude Bernard Lyon I - Hôpital Edouard Herriot - Hospices Civils de Lyon, Lyon, France; [2]Groupe HS France de la Société Française de Dermatologie, Paris, France; [3]Department of Dermatology, Erasme Hospital, Université Libre de Bruxelles, Brussels, Belgium; [4]RésoVerneuil, Paris, France; [5]Department of Surgery, Clinique du Val d'Ouest, Lyon, France

Background: Despite its high prevalence among HS patients, it remains unknown how tobacco smoking influences disease development and course.
Objectives and Methods: We ran a French monocentre prospective cohort study from January 2006 to December 2020.
Results: 1724 consecutive HS patients were enrolled and reported as active smokers, former smokers and non-smokers: 71%, 10.7%, 18.3%, respectively. HS symptoms started after smoking initiation in 69% of HS patients (811/1173) with a mean delay of 8 ± 7 years. We observed a positive correlation between the mean age at starting smoking and the mean age of HS onset (Spearman coef. = 0.4; p < 0.001). Comparing with non and former smokers, active smokers had mean DLQI score 14.3 ± 7.0 *versus* 12.6 ± 6.8 (p < 0.001). Mean maximal pain during HS flares was 7.8 ± 2.0 7.4 ± 2.2 (p = 0.003), and number of involved areas was >5 in 32% *versus* only 27% (p < 0.05). In active smokers, tobacco consumption was increased in Hurley

stage III patients (19 ± 18 pack-year) compared to Hurley stage II (14 ± 13) and Hurley stage I (13 ± 12) ($p < 0.001$, ANOVA). We observed a positive correlation between pack-years of smoking and the number of involved areas (Spearman coef. = 0.14; $p < 0.001$).

Discussion/Conclusion: Our data reinforce the negative impact of tobacco on HS progression: early smoking is correlated to earlier development of HS and heavy HS smokers tend to develop a more severe disease with a higher risk of Hurley stage III, a higher number of areas involved and more painful flares. Tobacco use must be systematically screened in HS patients to recommend discussion with an addictologist.

Acknowledgements: The Department of Dermatology, Erasme Hospital, Université Libre de Bruxelles, Brussels, Belgium is a health care provider of the European Reference Network for Rare and Complex Skin Diseases (ERN Skin).

39 | Comparison of insulin resistance between hidradenitis suppurativa and psoriasis patients on anti-TNF-α therapy omitting confounding factors

Elia Rosi; Maria Thais Fastame; Antonella Di Cesare; Federica Ricceri; Francesca Prignano
University of Florence, Department of Health Sciences, Section of Dermatology, Florence, Italy

Background: Some recent studies have shown an increased frequency of insulin resistance (IR) in hidradenitis suppurativa (HS) patients; IR has already been associated to several chronic inflammatory conditions such as psoriasis (PsO) in the recent past [1]. Obesity (especially abdominal obesity), dyslipidaemia and smoking habit, frequently reported conditions associated with HS, are important determinants of IR [2].

Objectives: Our study sought to compare the IR profile of HS patients with PsO (a skin disease strongly associated with IR) patients, both undergoing anti-tumor necrosis factor alpha (TNF-α) therapy, and age-, gender- and BMI-matched healthy controls.

Methods: 45 subjects (15 HS, 15 PsO and 15 controls) aged between 18 and 50 years were analysed. We excluded the presence of major risk factors for IR in order to avoid possible confounding factors.

Demographic/clinical characteristics and laboratory samples (glucidic profile) were evaluated. The homeostasis model assessment of IR (HOMA-IR) was calculated in all participants. Insulin resistance was defined as HOMA-IR > 2.5 [1].

Results: IR prevalence was significantly higher in HS and PsO patients compared to controls: 33.3% (5/15) vs 80% (12/15) vs 0% (0/15), respectively ($p < 0.01$). Significantly longer disease duration among PsO patients could explain this finding in part.

Conclusions: Our study confirmed that HS (although PsO was more intimately associated with IR than HS) has a significant higher prevalence of IR than controls even in the absence of major determinants of IR.

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128 | Syndromic hidradenitis suppurativa - 1

Angelo V. Marzano[1,2]
[1]*Dermatology Unit, Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico, Milan, Italy*; [2]*Department of Pathophysiology and Transplantation, Università degli Studi di Milano, Milan, Italy*

Background: Hidradenitis suppurativa (HS) is a chronic inflammatory dermatosis usually involving the skin folds characterized by a multifactorial pathogenesis, however with an important autoinflammatory component.

Objectives: It can also rarely present in association with other diseases as complex clinical syndromes, causing additional diagnostic and therapeutic challenges.

Methods: The syndromic forms of HS are PASH (PG, acne and hidradenitis suppurativa [HS]), PAPASH (PASH associated with pyogenic sterile arthritis), PsAPASH (PASH combined with psoriatic arthritis [PsA] and PASS (PG, acne, ankylosing spondylitis, with or without HS).

Results: Different etiopathological factors contribute to the inflammation of the hair follicle and suppurative lesions in these entities, including follicular hyperkeratinization and plugging as well as activation of autoinflammatory pathways. Moreover, our group recently demonstrated that vitamin D metabolism dysfunctions seem to be play a role in PASH and PAPASH pathogenesis. We also confirmed through a Whole Exome Sequencing (WES) approach that genetic alterations of autoinflammation and keratinization process are linked to PASH etiopathogenesis, according to the hypothesis that considers syndromic HS as an Autoinflammatory Keratinization Disease. Patients with syndromic HS commonly have a severe disease course, presenting atypical skin involvement, signs of systemic inflammation and refractoriness to conventional therapies.

Conclusion: Systematic classification of syndromic HS is based on clinical, pathogenetic and genetic grounds, but is constantly evolving due to increased disease awareness. Syndromic HS treatment may be difficult and should be tailored on a case-by-case basis. Investigations of syndromic HS can lead to useful insights on genetics and pathogenesis, translating in new clinical approaches for sporadic HS.

88 | Syndromic hidradenitis suppurativa - 2

Georgios Nikolakis[1,2]; Katarzyna Kaleta[3]; Christos C. Zouboulis[1,2]
[1]*Departments of Dermatology, Venereology, Allergology and Immunology, Dessau Medical Center, Brandenburg Medical School Theodor Fontane and Faculty of Health Sciences Brandenburg, Dessau, Germany*; [2]*European Hidradenitis Suppurativa Foundation e.V., Dessau, Germany*; [3]*Department of Dermatology, Jagiellonian University Medical College, Krakow, Poland*

Background: Apart from the sporadic and familial forms of hidradenitis suppurativa (HS), syndromes including HS in their phenotype have also been described over the last decades.
Objectives: Their majority can be classified to the group of autoinfammatory syndromes, which are characterized by inflammasome defects, resulting in overproduction of IL-1β and mediation of inflammation involving cutaneous and osteoarticular manifestations.
Methods: So far, PASH (Pyoderma gangrenosum, Acne, Suppurative Hidradenitis), PAPASH (Pyogenic Arthritis, Pyoderma gangrenosum, Acne, Suppurative Hidradenitis), PsAPASH (Psoriatic Arthritis, Pyoderma gangrenosum, Acne, suppurative Hidradenitis) and PASS (Pyoderma gangrenosum, Acne, ankylosing Spondylarthritis, hidradenitis Suppurativa) and SAPHO (Synovitis, Acne, Pustulosis, Hyperostosis, Osteitis) also include HS in their acronym but several other syndromes including HS in their manifestations do not.
Results: HS manifestations together with acne usually precede osteoarticular symptoms and pyoderma gangrenosum. Described mutations might be localized to the γ-secretase complex, such as on the NCSTN gene or genes coding for proteins, which affect the inflammasome function, such as the PSTPIP1 gene. Moreover, non-characterized syndromic forms including bowel or ocular manifestations have also been described. Syndromic HS can be recalcitrant to treatment and various therapeutic regimens, including antibiotics, corticosteroids, retinoids, disease-modifying anti-rheumatic drugs, anti-TNF, anti-IL-17, anti-IL-12/IL-23 and anti-IL-1 biologics.
Conclusion: Since cutaneous manifestations can predict the often non-reversible osteoarticular symptoms, early dermatologic consultation by an experienced dermatologist is critical for the proper therapeutic strategy for this patient population.
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95 | Improvement of cytokine production capacity from mononuclear cells of patients with hidradenitis suppurativa (HS) with the addition of secukinumab

Styliani Micha; Dimitra Stergianou; Vassiliki Tzanetakou; Theodora Kanni; Theologia Gkavogianni; Evangelos J. Giamarellos-Bourboulis
4th Department of Internal Medicine, National and Kapodistrian University of Athens, Athens, Greece

Introduction: Previous studies have shown that high levels of TNF in the pus of lesions of patients with HS may predict poor response to treatment with adalimumab.
Objectives: To study how secukinumab may modulate cytokine production capacity from the mononuclear cells (PBMCs) of patients with HS.
Methods: PBMCs were isolated from 25 patients with HS and stimulated with heat-killed Staphylococcus aureus for the production of TNFα and IL-1β; this was repeated with the addition of secukinumab in the growth medium at 10 and 20 μg/ml. Patients were characterized as high-pus TNFα or low-pus TNFα based on the median pus concentrations. Cytokines were measured by an enzyme immunoassay.
Results: Mean production of TNFα was 1546.9 pg/ml by the PBMCs of low-pus TNFs and 697.6 pg/ml by the PBMCs of high-pus TNFs. The likelihood for the achievement of positive HS clinical response (HiSCR) after 12 weeks of adalimumab treatment response to anti-TNF treatment was lower among high-pus TNFα patients. The addition of secukinumab improved the capacity of PBMCs of high-pus TNFα patients for the production of TNFα and IL-1β (see Figure 1).
Conclusion: The addition of secukinumab in the medium of high-pus TNFs improved the capacity of PBMCs to produce TNFα or IL-1β upon bacterial stimulation. Since HiSCR achievement is greater among low-pus TNF patients who had better function of PBMCs, findings generate the hypothesis that since the function of PBMCs of high-pus TNF is restored with the addition of secukinumab, secukinumab may be a treatment option for these patients.
Acknowledgements: This study was funded by an investigator-initiated research support from Novartis Hellas to Prof. E.J. Giamarellos-Bourboulis.

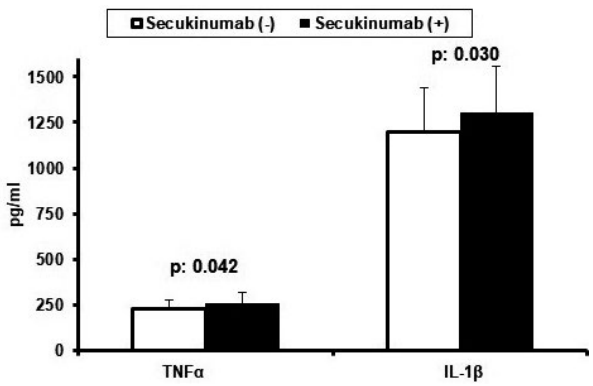

FIGURE 1 Addition of secukinumab in the medium of high-pus TNFs improves the capacity of PBMCs to produce TNFα or IL-1β upon bacterial stimulation

107 | Complement split product C5a is elevated in moderate and severe hidradenitis suppurativa: clinical improvement by targeted therapy coming from the SHINE Study

Evangelos J. Giamarellos-Bourboulis[1,9]; Gregor B. E. Jemec[2,3,9]; Errol P. Prens[4,5,9]; Maria Habel[6]; Jacek C. Szepietowski[7,9]; Hessel H. van der Zee[5,9]; Christos C. Zouboulis[8,9]; Christopher J. Sayed[10]

[1]4th Department of Internal Medicine, National and Kapodistrian University of Athens, Athens, Greece; [2]Department of Dermatology, Zealand University Hospital, Faculty of Health Science, University of Copenhagen, Denmark; [3]Institute of Clinical Medicine, Faculty of Health Science, University of Copenhagen, Copenhagen, Denmark; [4]Laboratory for Experimental Immunodermatology, Erasmus University Medical Center Rotterdam, Rotterdam, Netherlands; [5]Department of Dermatology, Erasmus University Medical Center Rotterdam, Rotterdam, Netherlands; [6]InflaRx GmbH, Jena, Germany; [7]Department of Dermatology, Venereology and Allergology, Wroclaw Medical University, Wroclaw, Poland; [8]Departments of Dermatology, Venereology, Allergology and Immunology, Dessau Medical Center, Brandenburg Medical School Theodor Fontane and Faculty of Health Sciences Brandenburg, Dessau, Germany; [9]European Hidradenitis Suppurativa Foundation e.V., Dessau, Germany; [10]Department of Dermatology, University of North Carolina, Chapel Hill, NC, USA

Introduction: One previous study from Greece showed that the circulating complement split product C5a is significantly increased in hidradenitis suppurativa (HS) [1].

Objectives: To validate the levels of circulating C5a in a multinational cohort of patients.

Methods: In the SHINE randomized clinical trial patients with Hurley II or Hurley III HS were allocated into treatment with placebo or different doses of the anti-C5a IFX-1 (SHSA 2019). Plasma was sampled from all patients before randomization; sampling was repeated at week 16. C5a was measured by an enzyme immunosorbent assay.

Results: 177 patients participated in nine different countries; 98 were Hurley II and 79 Hurley III stage. Median C5a (Q1/Q3) was 60.95 ng/ml (39.11/97.87) and 61.21 ng/ml (42.74/84.95) respectively. Using the International HS4 score (IHS4), 37 patients were classified into moderate and 139 patients into severe HS; median C5a (Q1/Q3) was 59.91 ng/ml (45.00/91.37) and 61.55 ng/ml (39.11/89.09) respectively. In 20 healthy volunteers, C5a was 26.75 ng/ml (18.80/44.27). After 16 weeks of treatment mean decrease of IHS4 from baseline was 19.8% among placebo, and 51.5% among patients treated with the most potent dose of IFX-1 (1200mg every other week); respective decrease of draining fistula count was 18.0% and 63.2%; and of C5a levels 31.15% and 72.11%.

Conclusion: Results suggest an important role of C5a in the pathogenesis of HS. C5a is increased in Hurley II and Hurley III disease and in moderate and severe HS. Decrease of circulating C5a using IFX-1 is accompanied by clinical improvement.

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132 | Pediatric HS: Epidemiology and comorbidities

Ditte M. L. Saunte[1,2]

[1]Department of Dermatology, Zealand University Hospital, Roskilde, Denmark; [2]Department of Clinical Medicine, University of Copenhagen, Faculty of Health Science, Copenhagen, Denmark

Background: Pediatric HS is defined by its onset before the age of 18 years; rare before puberty, but with increasing prevalence after.

Objectives and Methods: Most studies find familiar predisposition associated with pediatric HS [1], which is supported by mutations of the Notch pathway [2].

Results: The sex distribution is controversial. Studies in prepubescent children report a male predominance [3,4] whereas postpubescent studies show a predominance of females possibly due to a pathogenic role of ovarian hormones [3]. Active smoking or passive exposure to tobacco are probably important [1]. Examples of comorbidity in children are: Acne, endocrinopathies (e.g. PCOS), diabetes, obesity, Downs syndrome, inflammatory bowel and joint diseases [1,3,4], and depression [5].The clinical manifestations are similar to those of adults. Management is complex and predominantly opinion based.

Conclusion: Early diagnosis, screening for comorbidities, relevant lifestyle interventions, psychological support and appropriate treatment also help pediatric HS patients.

Acknowledgements: The Department of Dermatology, Zealand University Hospital, Roskilde, Denmark is a health care provider of the European Reference Network for Rare and Complex Skin Diseases (ERN Skin).

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134 | Pediatric hidradenitis suppurativa - Therapeutic management

Farida Benhadou
Dermatology, Erasme Hospital, Université Libre de Bruxelles, Brussels, Belgium

Background: Hidradenitis suppurativa (HS) is unfrequently observed in pediatric patients but may significantly impair the quality of life and self-esteem [1]. Early diagnosis and treatment are crucial in controlling the progression of the disease.
Objectives and Methods: Despite the great scientific advances made in development of new therapies in adult HS, the therapeutic management of HS in pediatric population is not standardized and remains challenging. The main goals of the therapy should include the control of the pain, the decrease of the inflammation and the prevention of scarring process.
Results: Mild forms of HS can be successfully treated by topical options as clindamycin in monotherapy [2], intralesional corticosteroids and miscellaneous therapies (e.g. botulinum toxin, laser hair removal) [3]. Severe cases will require systemic treatments with antibiotics, finasteride or corticosteroids [2]. Importantly, adalimumab is the first TNF-α inhibitor approved by the FDA in the treatment of moderate to severe HS in patients 12 years of age and older [4]. Surgery may be recommended in recalcitrant forms of HS [5].
Conclusion: The diagnosis of concomitant comorbidities and lifestyle modifications have to be taken into consideration in the therapeutic management in pediatric HS.
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112 | Whole exome sequencing of 12 unrelated PASH patients suggests the classification of syndromic hidradenitis suppurativa as an autoinflammatory keratinization disease

Lucas Brandao[1]; Ronald Moura[1]; Michele Boniotto[2]; Paola M. Tricarico[1]; Rossella Gratton[1]; Chiara Moltrasio[3,4]; Giovanni Genovese[5]; Cecile Nait-Meddour[2]; Angelo V. Marzano[3,5]; Sergio Crovella[6]
[1]*Department of Advanced Diagnostics, Institute for Maternal and Child Health-IRCCS "Burlo Garofolo", Trieste, Italy*; [2]*Univ Paris Est Creteil, INSERM, IMRB, Creteil, France*; [3]*Dermatology Unit, Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico, Milano, Italy*; [4]*Department of Medical Surgical and Health Sciences, University of Trieste, Trieste, Italy*; [5]*Department of Physiopathology and Transplantation, Università degli Studi di Milano, Milano, Italy*; [6]*Department of Biological and Environmental Sciences, University of Qatar, College of Arts and Sciences, Doha, Qatar*

Background: The association of pyoderma gangrenosum, acne and hidradenitis suppurativa (PASH) occurs in very rare cases and the identification of susceptibility genes is challenging.
Objectives and Methods: Eleven unrelated PASH and one PAPASH patient were investigated through Whole Exome Sequencing (WES) aimed at uncovering novel pathogenic variants and potential causative pathways associated with these diseases.
Results: WES analysis identified 5 patients with pathogenic or likely pathogenic MEFV variants (M694V, V726A, M680I, I591T and A148Q), one patient with a very rare NLRC4 stop mutation (p.Arg181Ter) and two patients with novel NCSTN frameshift mutations (I162Yfs*57 and D243Sfs*7). Interestingly we found only one rare variant in PSTPIP1 (p.E277D) in the patient carrying two MEFV pathogenic variants presenting also with pyogenic arthritis. Since all patients were sporadic, with no family history of the disease, we hypothesized a polygenic etiology of PASH/PAPASH. To identify biological pathways enriched for mutated genes, we computed the damaging variation gene density of seven common genes enriched in damaging variants in the 12 patients. Reactome pathway enrichment analysis resulted in two disrupted pathways, namely (1) keratinization (R-HAS-6805567) and (2) formation of the cornified envelope (R-HSA-6809371), common in all 12 PASH subjects.
Conclusion: Our findings suggest that damaging variants in the genes responsible for keratinization are associated with PASH pathogenesis; moreover mutations in genes already described in autoinflammatory diseases have been detected. These findings led us to suggest hidradenitis suppurativa and its syndromic forms as an Autoinflammatory Keratinization Disease.

86 | CRISPR-Cas9 correction of a NCSTN mutation associated with hidradenitis suppurativa and Dowling-Degos disease (DDD) in an induced pluripotent stem cell line (IMRB_06-06) supports *NCSTN* as novel gene for DDD

Cecile Nait-Meddour[1]; Simone Garcovich[2,3]; Olivier Feraud[1]; Paola M. Tricarico[4]; Sergio Crovella[5]; Ketty Peris[2,3]; Michele Boniotto[1]

[1]*Univ Paris Est Creteil, INSERM, IMRB, Creteil, France;* [2]*Dermatology, Fondazione Policlinico Gemelli IRCCS, Rome, Italy;* [3]*Dermatology, Università Cattolica del Sacro Cuore, Rome, Italy;* [4]*Department of Advanced Diagnostics, Institute for Maternal and Child Health-IRCCS "Burlo Garofolo", Trieste, Italy;* [5]*Department of Biological and Environmental Sciences, College of Arts and Sciences, University of Qatar, Doha, Qatar*

Background: Genetic mutations leading to PEN2 haploinsufficiency are associated with both Hidradenitis Suppurativa (HS) and Dowling-Degos (DDD) but whether *NCSTN* mutations can be responsible for DDD is still debated. We have previously described a patient suffering from HS-DDD with a novel nonsense mutation in *NCSTN* (p.Arg583X) and showed that NCSTN haploinsufficiency lead to PEN2 decreased expression comparing keratinocytes from two different individuals.

Objectives: To rule out the influence of age or modifier genes in the decreased PEN2 expression in our patient, we have created an induced pluripotent stem cell (IPSC) line and corrected *NCSTN* mutation by CRISPR-Cas9.

Methods: Hair follicle-derived keratinocytes were obtained from plucked hairs of the patient and used to generate IPSCs. Single base substitution was obtained with a ssODN after the induction of site-specific DNA breaks by CRISPR/Cas9.

Results: Pluripotency of the iPSC line was confirmed by analyzing the expression of pluripotency markers by qPCR, immuno-fluorescence and Flow Cytometry. The iPSC line showed a normal karyotype and was able to differentiate into the 3 germ layers.The corrected clone showed a significantly increased expression not only of NCSTN, but also PEN2 and other g-secretase subunits such as PSEN1.

Conclusion: Using IPSCs we have shown that our *NCSTN* nonsense mutation is responsible not only for its haploinsufficiency, but also for a significantly decreased expression of important g-secretase subunits such as PEN2 and PSEN1. Since PEN2 haploinsufficiency has been already associated to DDD, we think that NCSTN should be added as a novel susceptibility gene for HS- DDD.

150 | Registries - A review

Veronique del Marmol

Dermatology- Hopital Erasme, Université Libre de Bruxelles, Brussels, Belgium

Background: Registries are established to collect reliable data on relevant features of a disease, like epidemiology, safety and therapeutic effectiveness. Data collected from national registries provides information like prevalence, evaluation of a risk-ratio with other diseases and comorbidities (psychiatric diseases, Alzheimer's, Down syndrome etc).

Objectives: Specific HS-related disease registries have the aim of describing baseline characteristics (including phenotypes) and improving the understanding of factors affecting onset, natural history and clinical outcome of the disease, with or without specific therapies. Registries may also focus on the relationship between disease and other variables, like pregnancy and infection, as demonstrated by the registry created during the COVID-19 pandemic [1].

Methods: Technically, the database can be compiled with an open-source software system (Red Cap, EHRS and American registry), or a centralized database (European database with German registry) for countries not willing to use open sources systems.

Results: The first registries were created in Italy [2] and the Nordic Countries (Denmark, Norway, Sweden) [3], followed by the European Initiative (EHRS) that created a common template [4, 5]. Interestingly, EHRS integrated the most items, which made it possible to combine most of the published scores during follow-up. Later, an American registry was initiated.

Conclusion: Interesting data has already been extracted for phenotype, but the registries have not yet assessed therapeutic efficacy against clinical data. Clinical follow-up is vital to be able to identify which specific patient subgroups have the best risk/benefit ratio for a given treatment.

Acknowledgements: The Department of Dermatology, Erasme Hospital, Université Libre de Bruxelles, Brussels, Belgium is a health care provider of the European Reference Network for Rare and Complex Skin Diseases (ERN Skin).

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P24 | MCPIP1/Regnase-1 expression in the skin of hidradenitis suppurativa patients

Piotr K. Krajewski[1]; Weronika Szukała[2]; Agata Lichawska-Cieslar[2]; Lukasz Matusiak[1]; Jolanta Jura[2]; Jacek C. Szepietowski[1]
[1]Department of Dermatology, Venereology and Allergology, Wroclaw Medical University, Wroclaw, Poland; [2]Department of General Biochemistry, Faculty of Biochemistry, Biophysics and Biotechnology, Jagiellonian University, Krakow, Poland

Background: The pathogenesis of hidradenitis suppurativa (HS) is yet to be fully understood, however inflammation is a key element in the development of skin lesions.
Objectives: The aim of this study was to evaluate the expression of MCPIP1 (mRNA and protein levels) in the skin of patients suffering from HS.
Methods: Skin biopsies of 15 patients with HS (from lesional and non-lesional skin) and 15 healthy controls were obtained and processed for immunohistochemistry and real time PCR. The results from three groups were subsequently compared.
Results: The highest mean MCPIP1 mRNA expression was found in the inflammatory lesional skin of HS patients (0.0503 ± 0.0825). It was significantly higher than MCPIP1 mRNA expression in the biopsies from both healthy controls (0.0089 ± 0.0052, $p < 0.001$) and non–lesional skin of HS patients (0.0047 ± 0.0031, $p < 0.001$). Specific MCPIP1 immunostaining was cytoplasmic and present in the epidermis, as well as in hair follicles. MCPIP1 immunoreactivity was found in all studied biopsies in the suprabasal layers of the epidermis. There was no MCPIP1 immunoreactivity in the dermis.
Conclusion: The increased MCPIP1 mRNA expression in HS lesions may indicate its possible role in the disease pathogenesis, however future studies are necessary for deeper understanding of the process.

P30 | Polish language version of HiSQoL: psychometric assessments

Piotr K. Krajewski[1]; Lukasz Matusiak[1]; Marta Szepietowska[2]; Julia Rymaszewska[2]; Gregor B. E. Jemec[3,4]; Joslyn Kirby[5]; Jacek C. Szepietowski[1]
[1]Department of Dermatology, Venereology and Allergology, Wroclaw Medical University, Wroclaw, Poland; [2]Student Research Group of Experimental Dermatology, Department of Dermatology, Venereology and Allergology, Wroclaw Medical University, Wroclaw, Poland; [3]Department of Dermatology, Zealand University Hospital, Roskilde, Denmark; [4]Health Sciences Faculty, University of Copenhagen, Copenhagen, Denmark; [5]Department of Dermatology, Penn State Health Milton S. Hershey Medical Center, Hershey, PA, USA

Background: Hidradenitis suppurativa (HS) is a chronic, inflammatory and painful cutaneous disease which often has a negative influence on patients' quality of life. Dermatology-specific instruments, such as Dermatology Life Quality Index and Skindex, were commonly used to evaluate HS patients' quality of life. However, due to the lack of specific questions, these scales may not be adequate and may not reflect the real problem.
Objectives: The aim of this study was to translate and validate the Polish version of a newly created HS-specific questionnaire – Hidradenitis Suppurativa Quality of Life (HiSQOL).
Methods: A forward and backward translation was conducted from the original English version of the questionnaire to Polish language according to international standards. The validation was performed on a group of 30 patients suffering from HS, who completed the questionnaire twice with 4-5 days interval.
Results: The Polish version of HiSQOL questionnaire showed a very good internal consistency (Cronbach α coefficient was 0.96 for total score). Excellent reproducibility with the intraclass correlation coefficient (ICC) of 0.97 was demonstrated. The Spearman correlation coefficient of each item and the total score of the scale was 0.500 to 0.934, and the Spearman correlation coefficient of each item was 0.224 to 0.654.
Conclusion: The Polish version of HiSQOL questionnaire has high internal reliability, validity and reproducibility. It can be used as a tool to assess health related quality of life in the patients suffering from hidradenitis suppurativa.
Acknowledgements: The Department of Dermatology, Zealand University Hospital, Roskilde, Denmark is a health care provider of the European Reference Network for Rare and Complex Skin Diseases (ERN Skin).

P33 | SARS-CoV-2 seroprevalence in patients with hidradenitis suppurativa in Lithuania

Vaiva Jariene; Agne Bubilaite; Veja Rimsaite; Martynas Adomaitis; Vesta Kucinskiene; Skaidra Valiukeviciene
Department of Skin and Venereal Diseases, Kauno Klinikos, Hospital of LUHS, Lithuanian University of Health Sciences (LUHS), Kaunas, Lithuania

Background: COVID-19 is a clinical syndrome caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). In Lithuania, incidence of COVID-19 was the highest among European Union (97.4 new daily cases per 100 000 inhabitants) reported on 16th December 2020 [1].
Objectives: The aim of this pilot observational study was to evaluate seroprevalence of COVID-19 infection among patients with hidradenitis suppurativa (HS).
Methods: This data was collected as part of multicentre study "COVID-19 and rare skin diseases. European observational study (data research) during an epidemic". Between 12th August and 30th December 2020, 80 HS patients followed at ERN-SKIN reference centre were contacted through a telephone call. In total, 26 patients agreed to give blood sample for COVID-19 antibodies (Ab) test. The IgM and IgG Ab titres against SARS-CoV-2 were measured using ELISA (EUROIMMUN) tests with threshold of positivity for IgM and IgG ratio 1.1.
Results: Positive IgM or IgG serology against SARS-CoV-2 was found in 2/26 (7.7%; 95%CI 2.13-24.14) cases. One asymptomatic patient (56-year-old smoker male with Hurley stage II) showed positive anti-SARS-CoV-2 IgM Ab (1.665 ratio). Another asymptomatic patient had anti-SARS-CoV-2 IgG Ab (1.197 ratio). He was 37 years old smoker with arterial hypertension. Also, one case showed borderline SARS-CoV-2 IgM Ab (0.889 ratio). After three days, symptoms as fever, myalgia, and anosmia appeared and patient was confirmed as COVID-19 positive based on PCR test.
Conclusion: Our results show that prevalence of asymptomatic COVID-19 infection in HS patients differs from 2.13% to 24.14% based on positive serology and calculation of 95% CI.
Acknowledgements: The Department of Skin and Venereal Diseases, Kauno Klinikos, Lithuanian University of Health Sciences, Kaunas, Lithuania is a health care provider of the European Reference Network for Rare and Complex Skin Diseases (ERN Skin).
Reference: [1] COVID-19 situation: Lithuania. Available at: https://covid19.who.int/region/euro/country/lt Jan 17, 2020.

P34 | Increased expression of NCSTN, Notch and PI3K/AKT3 in hidradenitis suppurativa (HS)

Thilo Gambichler; Schapoor Hessam; Marina Skrygan; Lisa Scholl; Michael Sand; Eggert Stockfleth; Falk Bechara; Thomas Meyer
Dermatology, St. Josef Hospital, Ruhr-University Bochum, Bochum, Germany

Background: The family history of HS in 30-40% of affected patients indicates genetic predisposition of the disease. In some cases of familial HS loss-of-function mutations were reported in genes of the γ-secretase complex, mainly the nicastrin-encoding NCSTN gene. Blocking of NCSTN in animal models impairs Notch signaling, resulting in epidermal and follicular abnormalities similar to histological findings of HS, leading to the view that Notch dysregulation is involved in HS pathogenesis.
Objectives and Methods: Since data concerning expression of Notch pathway components in HS are still sparse, we analyzed mRNA and protein expression of NCSTN, Notch1-3 and the down-stream signaling components PIK3R3 and AKT3 in sporadic and familial HS. Skin samples from healthy controls, lesional and perilesional skin of HS patients with and without positive family history were analyzed by quantitative real-time RT-PCR and immunohistochemistry.
Results: Expression levels of all investigated genes were higher in lesional skin compared to healthy controls. No association between positive family history and mRNA expression levels was found. Perilesional skin of patients with mild disease (Hurley I) showed significantly higher mRNA expression levels of the investigated components compared to moderate and severe disease (Hurley II and III). Our results challenge the assumed importance of loss-of-function mutations in genes of the γ-secretase complex. We found no evidence for reduced Notch signaling as would be expected in case of functional impairment of γ-secretase. In contrast, NCSTN, Notch and PI3K/AKT signaling components are overexpressed in HS.
Conclusion: The possible pathogenetic importance of this overexpression needs to be investigated in future studies.

P46 | Mucosal Associated Invariant T (MAIT) cells and the IL-17 lineage in hidradenitis suppurativa

Julie Mac Mahon[1,3]; Catriona Gallagher[1,3]; Andrew Hogan[2]; Anne Marie Tobin[1,3]
[1]Tallaght University Hospital Dublin, Dublin, Ireland; [2]Maynooth University, Maynooth, Ireland; [3]Trinity University Dublin, Maynooth, Ireland

Background: Hidradenitis Suppurativa (HS) is a chronic inflammatory disease of the hair follicles, resulting in painful skin lesions. Several inflammatory cytokines have been implicated in the pathogenesis of HS including IL-17. Mucosal Associated Invariant T (MAIT) cells are a population of unconventional "innate" T cells, which are capable of robust cytokine secretion in a T cell receptor dependent

or independent manner. The role of MAIT cells in HS is currently unknown.

Objectives and Methods: We investigated peripheral and skin resident MAIT cell frequencies and cytokine profiles in a cohort of patients with HS using multi-color flow cytometry. To determine the impact of the HS lesion microenvironment on MAIT cell cytokine profiles, we set up HS tissue conditioned media co-cultures with healthy MAIT cells and determined IL-17 levels by ELISA.

Results: In this study we show that MAIT cells accumulate in the lesions from patients with HS but not adjacent skin. MAIT cells from patients with HS display an altered cytokine profile with increased IL-17 production in both the periphery and lesions of HS patients. We show that HS lesion conditioned media polarized MAIT cells towards IL-17 production. Finally, we show that targeting the IL-17A transcription factor RORyt robustly reduces IL-17 production by MAIT cells from patients with HS.

Conclusion: Collectively our data details IL-17 producing MAIT cells as a novel player in the pathogenesis of HS and highlights the potential of RORyt inhibition as a novel therapeutic strategy.

P48 | Linking leukocyte populations, inflammation and insulin resistance in hidradenitis suppurativa

Julie Mac Mahon[1,2]; Conor Fitzmaurice[2]; Anne Marie Tobin[1,2]
[1]*Tallaght University Hospital, Dublin, Ireland;* [2]*Trinity College University, Dublin, Ireland*

Background: Hidradenitis suppurativa (HS) is a painful chronic inflammatory skin condition whose pathogenesis is not fully understood. Elevated HOMA-IR (Homeostatic Model Assessment of Insulin Resistance) and differential leukocyte counts compared to healthy age-sex matched controls, suggests a role for insulin resistance and dysregulated systemic inflammation in driving HS.

Objectives: To investigate the relationship between insulin resistance and systemic leukocyte profiles to understand the role of these factors in driving HS.

Methods: The study was designed as a retrospective cohort study on patients with a HS diagnosis but not diabetes mellitus, who presented to a dermatology outpatients department. Correlation analysis was performed and odds ratios were calculated to investigate the relationship of insulin resistance and raised leukocyte count.

Results: Significant differences in leukocyte count ($p = 0.005$), neutrophil count ($p = 0.005$) and neutrophil/lymphocyte ratio ($p = 0.02$) in insulin resistant patients versus non-insulin resistant patients was observed. Positive correlation was shown in HOMA-IR versus leukocyte count, and versus neutrophil count. Odds ratio was increased for leucocytosis in those with insulin resistance versus those without insulin resistance (OR = 6.250, $p = 0.01$).

Conclusion: There were increased levels of leukocytes and altered systemic leukocyte profiles for insulin resistant patients with HS versus those without. A positive correlation between HOMA-IR versus leukocytes and versus neutrophils represents a novel finding in HS. More study is required to see if the patterns observed in peripheral blood are present in the HS lesional skin and to compare these patterns in peripheral blood to that of age-sex-BMI matched healthy controls.

P63 | Prevalence of connective tissue disorders among patients with hidradenitis suppurativa

Rune Kjærsgaard Andersen[1]; Andrew Strunk[2]; Jurr Boer[3]; Gregor B.E. Jemec[1]; Amit Garg[2]
[1]*Department of Dermatology, Zealand University Hospital, Roskilde, Denmark;* [2]*Department of Dermatology, Donald and Barbara Zucker School of Medicine at Hofstra/Northwell, New York, NY, USA;* [3]*Department of Dermatology, Deventer Hospital, Deventer, Netherlands*

Background: Hidradenitis suppurativa (HS) is associated with a higher risk of developing the inflammatory connective tissue diseases systemic lupus erythematosus and morphoea. However, HS's association with Marfan's syndrome (MFS), Ehlers-Danlos syndrome (EDS), and osteogenesis imperfecta is still unknown.

Objectives and Methods: A cross-sectional study using the IBM Explorys database. Participants consisted of all patients with a valid HS diagnosis and a 1:4 ratio control group. The proportion of HS and control patients diagnosed with any one of the three primary outcomes, were calculated. Likewise, the odds ratio (OR) adjusted for age, sex, race, BMI, smoking status, and number of healthcare encounters during the study period were determined.

Results: Amongst the 61 260 HS patients, 123 had been diagnosed with either MFS, EDS or OI, (crude prevalence: 20.1 per 10.000). Amongst the 245 040 controls, this number was 267 (crude prevalence: 10.9 per 10.000). The adjusted OR was 1.58 (95% CI: 1.21-2.07, $p < 0.001$). For MFS the number of cases were 33 and 82 (crude prevalence: 5.4 and 3.3 per 10 000) and the adjusted OR was 2.02 (95% CI: 1.18-3.47, $p = 0.01$). For EDS the number of cases were 68 and 151 (crude prevalence: 11.1 and 6.2 per 10 000) and the adjusted OR was 1.26 (95% CI: 0.86-1.83, $p = 0.23$). For OI the number of cases were 23 and 40, (crude prevalence: 3.8 and 1.6 per 10 000), and the adjusted OR was 1.59 (95% CI: 0.82-3.09, $p = 0.17$).

Conclusion: HS is significantly associated with and increased risk of having a connective tissue disease, MFS in particular.

Acknowledgements: The Department of Dermatology, Zealand University Hospital, Roskilde, Denmark is a health care provider of the European Reference Network for Rare and Complex Skin Diseases (ERN Skin).

P65 | Is hidradenitis suppurativa caused by gene-gene interactions?

Rune Kjærsgaard Andersen[1]; Lisbeth Larsen[2]; Signe Clemmensen[2]; Jacob Hjelborg[2]; Niels Ødum[3]; Gregor B.E. Jemec[1]; Kaare Christensen[2]

[1]Department of Dermatology, Zealand University Hospital, Roskilde, Denmark; [2]Danish Twin Registry, Department of Epidemiology, Biostatistics and Biodemography, University of southern Denmark, Odense, Denmark; [3]Department of Immunology and Microbiology, University of Copenhagen, LEO Foundation Skin Immunology Research Center, Copenhagen, Denmark

Background: Aside from rare causative loss-of-function mutations in the γ-secretase complex, the genetic causes behind HS, and even the impact of genetics on HS susceptibility remain unknown.

Objectives: The purpose of this study was therefore to estimate the relative importance of genetic and environmental factors.

Methods: The Danish Twin registry and the Danish National Patient Registry was used to calculate the HS concordance rates in monozygotic (MZ) and dizygotic (DZ) twins. Classic biometric modeling was used to access the impact of genetic and environmental effects upon HS susceptibility. The multi-locus modeling approach was applied to the concordance rates for MZ and DZ twins to provide a range of indices for genetic heterogeneity of loci influencing the risk of HS.

Results: Out of 100 044 registered twins, we found 170 twins from 163 twin pairs diagnosed with HS. The seven concordant pairs were all monozygotic, and the monozygotic twins had a casewise concordance rates of 28% (95% CI: 7%; 49%). The familial risk for dizygotic twins followed that of the background population, and were 72.9 times lower than that of MZ twins. Biometrical modelling suggested a heritability of 0.80 (0.67; 0.93), and the multilocus index estimate that assesses the possibility of gene-gene interaction was 230 (95% CI: 60; 400). This was highly indicative of gene-gene interactions, with the possibility of up to six interacting loci.

Conclusion: We therefore conclude that genetics account for 80% of the HS susceptibility and that HS is most likely caused by gene-gene interactions rather than monogenetic mutations.

Acknowledgements: The Department of Dermatology, Zealand University Hospital, Roskilde, Denmark is a health care provider of the European Reference Network for Rare and Complex Skin Diseases (ERN Skin).

P75 | Perception and knowledge of hidradenitis suppurativa in Greece: a cross-sectional study of 1301 individuals

Aikaterini I. Liakou[1]; Marios Papadakis[2]; Andreas G. Tsantes[3]; Konstantina A. Tsante[3]; Georgios Kontochristopoulos[1]; Ioannis Marnelakis[1]; Anastasia Kapsiocha[1]; Alexandros Katoulis[4]; Stamatios Grigoriou[1]; Dimitris Rigopoulos[1]

[1]1st Department of Dermatology-Venereology, National and Kapodistrian University of Athens, Faculty of Medicine, "Andreas Sygros" Hospital for Cutaneous and Venereal Diseases, Athens, Greece; [2]University of Witten Herdecke, Department of Surgery II, Wuppertal, Germany; [3]Laboratory of Haematology and Blood Bank Unit, National and Kapodistrian University of Athens, Faculty of Medicine, "Attikon" General University Hospital, Athens, Greece; [4]2nd Department of Dermatology-Venereology, National and Kapodistrian University of Athens, Faculty of Medicine, "Attikon" General University Hospital, Athens, Athens, Greece

Background: Hidradenitis suppurativa (HS) is a chronic auto-inflammatory disease, which manifests with recurrent painful deep-seated nodules.

Objectives: Aim of this work was to qualitatively assess the disease's perception among patients.

Methods: We performed a descriptive two-step questionnaire survey from January 2017 to December 2018. Assessments were performed with self-assessed, online, standardized questionnaires via banner placement in Greek websites related to HS or when respondents were searching for specific terms in Google. The most important clinico-epidemiological characteristics, medical activity, comorbidities, personal perceptions and impact on participants' professional and everyday life were estimated [1-5].

Results: A total number of 1301 Greek people answered the questionnaire. Of them, 676 (52%) reported to having experienced symptoms resembling HS, whereas 206 (16%) reported to officially having been diagnosed with HS. The mean age of the study group was 39.2 ± 11.3 years. More than half of the diagnosed patients (n = 110, 53.3%) reported that their first symptoms presented in the age 12-25. Of the diagnosed patients (n = 206), the majority (n = 140, 68.0%) were females and active smokers (n = 124, 60.1%). Seventy-nine (79, 38.3%) patients reported a positive family history for HS. Ninety-nine (99, 48.1%) patients reported that HS has a negative effect on their social life, 95 (46.1%) on personal life, 115 (55.8%) on sexual life, 163 (79.1%) psychological condition and 128 (62.1%) on their quality of life in total.

Conclusion: Our study showed that HS seems to be an undertreated, time-consuming and cost-intensive disease.

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P92 | Down syndrome in hidradenitis suppurativa: a systematic review of 4893 patients

Samuel A. Der Sarkissian[1,2]; Kirsty J. L. Wark[2,4]; Geoffrey Cains[2,4]; John W. Frew[3,4]; Jane Woods[2,4]
[1]*University of Wollongong, School of Medicine, Wollongong, Australia;*
[2]*Department of Dermatology, Liverpool Hospital, Liverpool, Australia;*
[3]*University of New South Wales, Faculty of Medicine, Sydney, Australia;*
[4]*Ingham Institute, Applied Medical Sciences, Liverpool, Australia*

Background: Hidradenitis suppurativa is a debilitating autoinflammatory skin condition characterized by tunnels, abscesses and nodules in intertriginous areas. It has a significant impact on quality of life, even in mild disease and is associated with Down Syndrome. Currently the association is poorly understood and there is a paucity of evidence defining the prevalence.
Objectives: To define the prevalence of Down Syndrome in those with hidradenitis suppurativa and explore the underlying relationship between these two conditions.
Methods: A systematic search was performed using databases since 1946 to April 2020 including Ovid MEDLINE, PubMed, Cochrane Central Register of Controlled Trials (CCTR; CENTRAL), Cochrane Database of Systematic Reviews (CDSR), EMBASE and PsycINFO.
Results: A total of 5 studies were included with statistical analysis revealing an incidence of Down Syndrome in 1.6% of hidradenitis suppurativa sufferers. The patients with concurrent Down Syndrome showed a high propensity for lesions in the buttocks (26.92% vs 14.74%) and Inguinal/groin (53.85% vs 39.27%) areas. There were minimal differences in the gender and BMI of patients in both cohorts.
Conclusion: The prominent theory linking these conditions involves an increase in amyloid precursor protein expression resulting in impaired notch signaling [1, 2]. This stimulates keratinocyte adhesion, migration and proliferation giving a biologically plausible mechanism for increased follicular plugging [3]. An alternate theory suggests that the proinflammatory state and higher TNF-α levels seen in Down Syndrome may be in part be responsible for the increased prevalence in hidradenitis suppurativa [4, 5].
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P97 | Can we define inclusion criteria cut-offs to minimize placebo bias in clinical trials of hidradenitis suppurativa?

Theodora Kanni; Vassiliki Tzanetakou; Dimitra Stergianou; Amalia Bolanou; Styliani Micha; Evangelos J. Giamarellos-Bourboulis
4th Department of Internal Medicine, National and Kapodistrian University of Athens, Athens, Greece

Background: The endpoint of hidradenitis suppurativa clinical response (HiSCR) may lead to placebo responses exceeding 30% introducing difficulty to evaluate new treatments.
Objectives: To develop lesion cut-offs for participants in order to minimize the placebo effect.
Methods: From a database of 627 patients, 95 patients with Hurley II or III HS with at least 3 visits within 48 weeks were analyzed; 79 patients remained naïve from any biological during follow-up whereas 16 patients were washed-out for at least 24 weeks from biologicals before starting follow-up. The range between the minimum and the maximum counts of inflammatory lesions (AN), draining fistulas (DFs) and the international HS 4 score (IHS4) were calculated and entered ROC curve analysis to define values providing less than 20% variability using the Youden index. Analysis was done separately for naïve and washed-out patients.
Results: Large variability was found (Fig, 1). Among naïve patients selecting AN cut-offs more than 5, the mean variability is limited to 12.7% for ANs, 26% for DFs and 26.7% for IHS4; selecting DF cut-offs more than 2, this is 41.3%, 16.12% and 26.8% respectively; and selecting IHS4 cut-offs more than 9, this is 35.2%, 26.6% and 24.6% respectively. Lesion cut-offs could not be calculated for washed-out patients.
Conclusion: In order to minimize placebo effect naïve participants in clinical trials should have ANs more than 5 and DFs more than 2; alternatively they can have IHS4 more than 9; patients washed-out from previous biologicals need to have IHS4 more than 9.

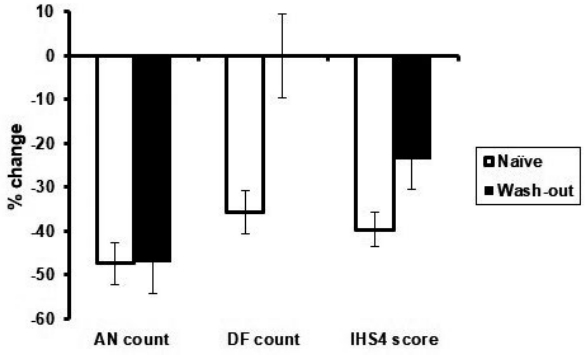

FIGURE 1 The range between minimum and maximum counts of inflammatory lesions (AN), draining fistulas (DFs) and of the IHS score during a follow-up period of 48 weeks without treatment; the range is provided separately for 70 naive patients naive to biologicals and for 16 patients who started the 48-week follow-up period after being washed for 24 weeks by previous biologicals

P104 | Hidradenitis suppurativa associated with multiple myeloma and plasmacytoma - a case report

Miguel Costa[1]; David João[2]; Xiaogang Wen[2]; António Massa[1]
[1]*Dermatology Department, Centro Hospitalar Vila Nova de Gaia/Espinho, Vila Nova de Gaia, Portugal;* [2]*Centro Hospitalar Vila Nova de Gaia/Espinho, Pathology Department, Vila Nova de Gaia, Portugal*

Background: One of the known consequences of hidradenitis suppurativa (HS) is the development of squamous cell carcinoma in long-standing lesions [1]. Also, it has been suggested that there could be an increased rate of hematological malignancies in the HS population, although a true association still needs to be demonstrated [2-4].
Objectives and Methods: We report a case of a 60-year-old man, followed in our department with the diagnosis of hidradenitis suppurativa for five years.
Results: Initially, he presented with nodular lesions in the inguinal and perianal region. During follow-up, he showed little improvement, with frequent relapses and difficult control of the condition. Four years after the diagnosis, he presented with lumbar pain of 3 months' duration, out of proportion to the cutaneous lesions. A mass was palpable on the sacral region [Figure 1]. An MRI revealed a soft tissue mass adjacent to the left ilium. A biopsy of the mass was performed, which revealed a plasmacytoma. The additional workup diagnosed an underlying IgG/kappa multiple myeloma, for which he started chemotherapy, achieving a partial response. The patient eventually died from infectious complications due to chemotherapy-related immunosuppression.
Discussion/Conclusion: After careful review of the literature, to our knowledge, this is the first reported case of a patient with the diagnosis of HS developing a multiple myeloma with an associated plasmacytoma.
With this case, we highlight not only the rarity of this association, but also the fact that an underlying malignancy was diagnosed in a patient whose HS was poorly controlled despite multiple treatments.

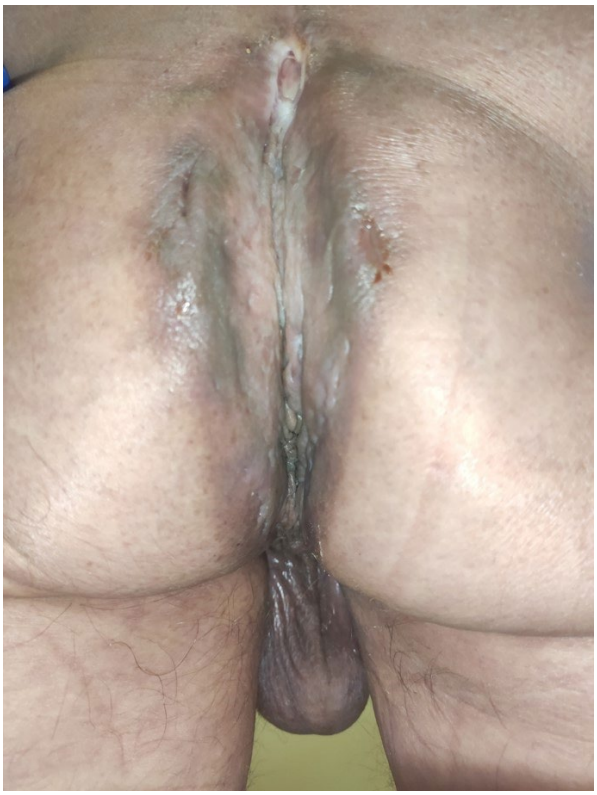

FIGURE 1 Lesions in the perianal region

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P133 | Serum IgE levels and atopic status of patients with hidradenitis suppurativa

Christos Toliopoulos; Michael Makris; Maria Dalamaga; Ourania Efthymiou; Christos Fokoloros; Alexandros Katoulis
2nd Department of Dermatology and Venereology, National and Kapodistrian University of Athens, Medical School, "Attikon" General University Hospital, Athens, Greece, Athens, Greece

Background: Hidradenitis suppurativa (HS) represents a chronic, recurrent immunologically-mediated inflammatory dermatosis. Atopy is a genetic predisposition to produce specific IgE, following exposure to allergens.
Objectives: We sought to investigate possible correlation between HS and atopy.
Methods: Thirty adult HS patients and thirty age- and sex-matched controls were studied. Evaluation included a questionnaire assessing the allergic status(history of allergic rhinitis/atopic dermatitis/allergic asthma/anaphylaxis) and measurement of total serum IgE and allergen-specific IgE, i.e. e1 (felisdomesticus), d1 (dermatophagoidespteronyssinus), g6 (phleum pretense), m6 (Alternaria alternate), f13 (peanut), w19 (Parietariaofficinalis), m80 (m80-Staphylococcal enterotoxin A), m81 (m80-Staphylococcal enterotoxin B).
Results: Of the patients, 10 were males and 20 females (67%), aged 18-59 years. Three patients reported symptoms of allergic rhinitis (10%) and one of atopic dermatitis (3.33%). Total serum IgE levels ranged from 15.80 IU/ml to 1120 IU/ml. The median total serum IgE was 62 IU/ml among HS patients vs. 50.5 IU/m among the controls. Thirty six percent of the patients vs. thirty percent of the controls had IgE values higher than 100 IU/ml. No statistically significant differences were documented. No correlations were found between total serum IgE levels and age, sex or Hurley stage. Four patients (13%) exhibited IgE sensitization to *S. aureus* enterotoxins. Interestingly, these patients had the highest total serum IgE values.
Conclusion: We observed increased total IgE serum levels and coexistence of atopy among patients with HS compared to controls without, however, reaching statistical significance. Larger scale studies are needed to elucidate possible associations between HS and atopy.

P136 | Identification of critical mediators and pathways in patients with hidradenitis suppurativa

Roisin Hambly[1,2]; Solene Gatault[3,4]; Luis Iglesias Martinez[3]; Sean Kearns[5]; Helen Rea[4]; Vivien Marasigan[5]; Kate Lynam-Loane[5]; Shivashini Kirthi[1]; Richard Hughes[1]; Peter Doran[5]; Walter Kolch[3,6]; Brian Kirby[1,4]
[1]Department of Dermatology, St Vincent's University Hospital, The Charles Centre, Dublin, Ireland; [2]University College Dublin, School of Medicine, Dublin, Ireland; [3]University College Dublin, Systems Biology Ireland, Dublin, Ireland; [4]Charles Institute of Dermatology, University College Dublin, Dublin, Ireland; [5]St Vincent's University Hospital, Clinical Research Centre, Dublin, Ireland; [6]Conway Institute of Biomolecular & Biomedical Research, University College Dublin, Dublin, Ireland

Background: Hidradenitis suppurativa (HS) pathogenesis is multifactorial incorporating genetics, microbiome, physiological/environmental factors, follicular occlusion and immune dysregulation. Adalimumab, the only licensed treatment, is effective in approximately 50% of patients.
Objectives and Methods: This was an investigator-led, open-label, single-arm clinical trial of adalimumab in HS. Patients underwent clinical assessment and skin biopsies at 0 and 12 weeks. The primary objective was to examine, using whole cell RNA sequencing, the effects of 12 weeks of adalimumab treatment on inflammatory profiles in skin. Secondary objectives were efficacy of adalimumab and to identify if responders had a different immunological profile compared to non-responders.
Results: Twenty patients with Hurley stage 2 (60%) and 3 (40%) were enrolled. Nineteen completed the study. 52.6% achieved HiSCR. 4000 differentially expressed genes (DEGs) were identified between lesional and non-lesional skin. S100A7, S100A9 and SERPINB4, previously identified as abnormal in HS, were in the top 10 DEGs. Using gene ontology and KEGG pathway enrichment we identified significant differences between lesional and non-lesional skin including regulation of immune response; complement activation; T cell differentiation, signaling and activation; NF-kappaB signaling and cytokine-cytokine receptor interaction. We did not identify statistically significant DEGs in lesional skin between week 0 and 12. We found higher pre-treatment levels of CCL-20 RNA in adalimumab responders ($p = 0.0004$). CCL-20 is known to be overexpressed in HS.
Conclusion: Preliminary transcriptomics has identified differences between lesional and non-lesional skin, predominantly relating to immune function. Differences in gene expression were identified at baseline between adalimumab responders and non-responders, identifying CCL-20 as a potential biomarker of treatment response.
Acknowledgements: This project was conducted with the financial support of Science Foundation Ireland and AbbVie under the SFI Strategic Partnership Programme Grant Number 15/SPP/3257. RH is currently supported by an academic training grant under the Irish Clinical Academic Training Programme, supported by the Wellcome Trust and the Health Research Board (Grant Number 203930/B/16/Z).

P143 | Late diagnosis of hidradenitis due to the finding of advanced squamous cell carcinoma: case report and review

Renata F. Magalhães; Helena M. Guerra
University of Campinas UNICAMP, Dermatology Division, Campinas, Brazil

Background: Squamous cell carcinoma (SCC) is considered to be the most severe complication in HS. The prevalence of SCC associated with HS is approximately 4.6%.
Objectives: We report on a case of late diagnosis of HS associated with SCC.
Methods and Results: This 51-year-old male had a history of gunshot injury at age of 12 leading to deficit in lower members. At the age of 29 he started with recurrent abscesses and sinus tracts on the buttock area. He was treated with antibiotics and abscess drainage. In May 2019 an MRI showed osteomyelitis in the right ischium. In January 2020 he was hospitalized; the dermatology team was call out due to a 4-cm ulcerated nodular lesion on the left buttock which had started 4 months earlier and an inflamed pedunculated lesion on the left inguinal region whose onset was 15 days before (Figure 1). The hypothesis of HS Hurley III was then made and biopsies of both lesions were performed. The results revealed that both lesions were SCC. Tomography indicated left inguinal lymph node enlargement. The patient started on radiotherapy.
Discussion: Long-lasting HS and the involvement of the buttocks and perineal areas increase the risk of malignant transformations to SCC [1-4], which leads to more concern with the use of anti-TNF. There is usually a delay on SCC diagnosis in HS patients due to the difficulties to distinguish the disease process of HS from the malignant transformation, but in this case the delay was in diagnosing HS itself.

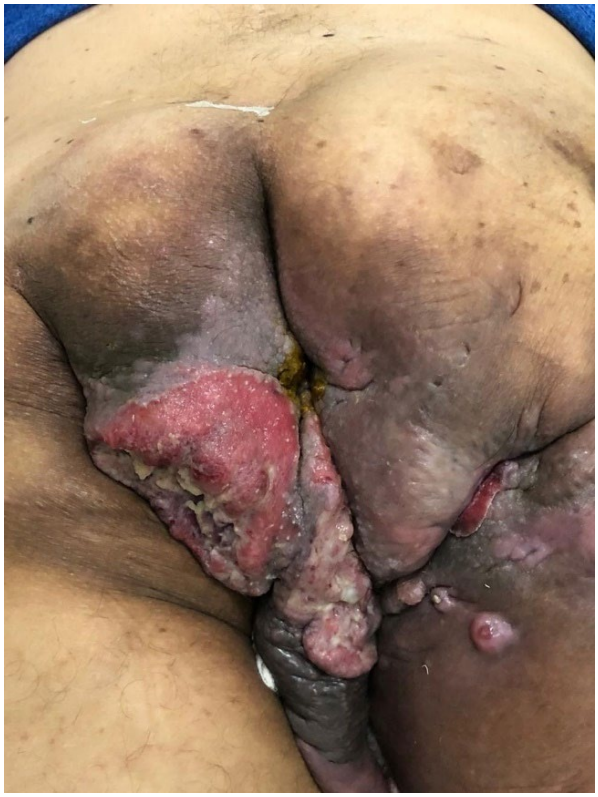

FIGURE 1 Gluteal abscesses and fistulas and ulcerated tumors, compatible with SCC

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P151 | The G-CSF pathway in hidradenitis suppurativa

Kerstin Wolk[1]; Theresa-Charlotte Brembach[1]; Deimantė Šimaitė[2]; Eckart Bartnik[2]; Serena Cucinotta[1]; Anna Pokrywka[1]; Marie Luise Irmer[1]; Julia Triebus[1]; Ellen Witte-Händel[1]; Gabriela Salinas[5]; Thomas Leeuw[2]; Hans-Dieter Volk[3]; Kamran Ghoreschi[1]; Robert Sabat[1]

[1]*Department of Dermatology and Institute of Medical Immunology/ Psoriasis Research and Treatment Center, Charité-University Medicine, Berlin, Germany*; [2]*Sanofi-Aventis Deutschland GmbH, Frankfurt, Germany*; [3]*Institute of Medical Immunology, Charité-University Medicine, Berlin, Germany*; [4]*Department of Dermatology, Venereology and Allergology, Charité-University Medicine, Berlin, Germany*; [5]*Transcriptome and Genome Core Unit, University Medical Center Göttingen, Göttingen, Germany*

Background: Hidradenitis suppurativa (HS; also referred to as Acne inversa) is a chronically relapsing inflammatory skin disease [1-3]. It commonly affects the intertriginous skin of the axillary, inguinal, gluteal, and perianal body sites and leads to progressive destruction of skin architecture.

Objectives and Methods: In this study, the expression and role of granulocyte-colony-stimulating factor (G-CSF), the master regulator of the neutrophil biology [4], were investigated in HS since this disease show clinical signs of a neutrophilic granulocyte-driven inflammation (e.g., purulent discharge, abscess formation).

Results: G-CSF was found at high (mRNA and protein) levels in the diseased skin of the patients, particularly in inflamed nodules and abscesses. Stimulation experiments revealed cutaneous fibroblasts and keratinocytes as the main producers of G-CSF, and IL-1ß and IL-17 [5], respectively, as the major triggers of the G-CSF production in these cells. In line with these results, experimental blocking of IL-1 [3] in cultured HS skin samples reduced contained G-CSF levels. Systems biology analyses, supported by further functional studies, suggested that in the diseased skin, G-CSF prolongs the survival of neutrophils (TRAIL-R3, TNFRSF6B) and enhances their activation induced by bacteria and damaged host cells (FPR1, FPR2, and FFAR2). In terms of the function of neutrophils, G-CSF was found to synergized with bacterial components to induce the production of skin-destructive enzymes (MMPs, ADAM8), matching the clinical phenotype in HS.

Conclusion: Based on these findings, the authors conclude that targeting the previously unknown G-CSF pathway in HS may represent an opportunity to treat the neutrophil-driven inflammation.

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P157 | Anti-Saccharomyces cerevisiae autoantibodies in hidradenitis suppurativa: prevalence and diagnostic value

Agnes Kinyó[1]; Zsolt Kádár[1]; András L. Kovács[1]; Péter Oláh[1]; Tímea Berki[2]; Rolland Gyulai[1]

[1]*Department of Dermatology, Venereology and Oncodermatology, University of Pécs Clinical Center, Pécs, Hungary*; [2]*Department of Immunology and Biotechnology, University of Pécs Clinical Center, Pécs, Hungary*

Background: Anti–Saccharomyces cerevisiae antibodies (ASCAs) are highly specific and sensitive biomarkers of Crohn disease. ASCA positivity usually predicts earlier onset and more aggressive disease, with stricturing or penetrating symptoms requiring surgical therapy. Recently, increased prevalence of ASCAs has also been reported in severe HS.

Objectives: We prospectively investigated the seroprevalence of ASCAs in patients with HS.

Methods: Between October 2018 and December 2020, 46 HS patients (27M:19F; average age: 41.0 years) and 24 healthy controls (9 M:15 F; average age 42.8 years) were enrolled into the study.

Results: Inflammatory bowel disease was present in 1 HS patient. Presence of IgG and/or IgA ASCAs was significantly more frequent in the HS group (56.5%) than in the control individuals (29.1%, $p = 0.0001$). ASCA positive patients were more likely to be males (64%). ASCA positivity positively correlated with HS severity (Hurley classification): 38.4%, 53.3% and 66.6% of Hurley I, Hurley II and Hurley III stage patients were ASCA+. Disease onset was significantly earlier in ASCA+ patients (27.1 vs 33.1, $p = 0.046$). In ASCA+ female patients disease onset was significantly earlier compared to ASCA- females (20.5 vs 30.2 years, $p = 0.026$) and ASCA+ or ASCA- male patients (31.3 and 35.5 years, $p = 0.005$ and $p = 0.003$, respectively). We have not found significant association between the presence of ASCAs and BMI, family history or smoking.

Conclusion: Our results suggest that ASCA positivity is significantly more frequent in HS patients than in healthy individuals, and ASCA presence is positively correlated with HS severity. Further studies are warranted to clarify if ASCA antibodies may serve as biomarkers in HS.

HS around the World (Selected International Contributions)

161 | HS around the world – South Asian perspective

Nisha S. Chandran[1,2]
[1]*Division of Dermatology, Department of Medicine, National University Hospital, Singapore, Singapore;* [2]*Department of Medicine, NUS Yong Loo Lin School of Medicine, Singapur, Singapore*

Background: The overall estimated prevalence of HS ranges from 0.00033% to high as 4.1% throughout Europe and the USA [1]. Less is known on the prevalence of HS in Asia [2].
Objectives, Methods, Results and Conclusion: At present, there are significant gaps in the focus of HS-related therapeutic studies and clinical trials between Western and Asian populations [3]. There is limited information on race and ethnicity in HS-related RCTs, with apparent over-representation of Caucasian populations. It is important to appreciate that the Asian HS patient is unique. Asian studies indicate a male predilection, which may be linked to differences in prevalence of smoking and obesity [4]. Metabolic comorbidities are common. Further investigation into gender and ethnic differences in apocrine gland-bearing skin are warranted.
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127 | A nation-wide clinic-based cross-sectional epidemiological study of hidradenitis suppurativa in China

Baoxi Wang
Dermatology, Plastic surgery Hospital, Chinese Academy of Medical Sciences and Peking Union Medical College, Beijing, China

Background and Objectives: This study intended to estimate the prevalence of HS in mainland China and describe the clinical features and patient burden in Chinese population through a multi-center clinic-based cross-sectional study.
Methods: It was conducted in dermatology clinics within over 20 general hospitals located in 18 cities across different regions of China mainland from September to October 2020.The prevalence was calculated as the percentage of HS patients among all attenders at participating clinics during the study period. All HS patients were invited to participate in a questionnaire survey.
Results: Of total 290 865 clinic attenders, 97 were diagnosed with HS. The prevalence of HS was estimated at 0.033% (95%CI, 0.027-0.040). 92 patients participated in the survey and were included in the secondary analysis. The majority of patients were Han Chinese (85.9%), male (78.3%), between 20 to 40 years old (78.3%) and overweight or obese (body mass index≥24 kg/m2, 60.9%). Half (50%) ever smoked cigarettes. Over half patients presented with Hurley stage II (58.7%). Only 14.1% had family history of HS. Participants reported a profound impact on quality of life.
Conclusion: This is the first nation-wide study to estimate the prevalence of HS in China and we found a much lower prevalence and a male predisposition.

138 | The prevalence of hidradenitis suppurativa in an obese Australian population

Kirsty J. L. Wark[1,2]; Artiene Tatian[1,2]; Jane Woods[1,2]; Janet Franklin[3]; Samantha Hocking[3]; Tania Markovic[3,4]; Elisia Manson[3]; Ian Caterson[3,4]; Geoffrey Cains[1,2]
[1]*Department of Dermatology, Liverpool Hospital, Liverpool, Australia;* [2]*Ingham Institute of Applied Medical Sciences, Liverpool, Australia;* [3]*Metabolism & Obesity Services, Royal Prince Alfred Hospital, Camperdown, Australia;* [4]*Charles Perkins Centre, Boden Institute of Obesity, Nutrition, Exercise and Eating Disorders, Camperdown, Australia*

Background: Hidradenitis suppurativa (HS) has an estimated prevalence of 0.03-4% in the general population [1]. However, this is likely an underestimation. Diagnostic delay of HS has been shown to be a global problem and may be attributed to both delayed presentation of patients to physicians and/or an incorrect diagnosis from physicians [2]. An accurate and early diagnosis is essential to initiate treatment and, ultimately, improve patient quality of life.
Objectives: We conducted an observational study examining the incidence of HS in an obese Australian cohort attending obesity clinics at a quaternary referral centre.
Methods: Patients were given a screening questionnaire developed by the research team, and if they scored 3 or more, they were invited and consented to be reviewed by a dermatologist (GC).
Results: A total of 141 patients were screened, with 15 patients both scoring 3 or more and consenting to examination. Of these patients, 5 were found to have hidradenitis suppurativa on physical examination.
Conclusion: The overall prevalence of HS in this cohort was 3.5%. We will discuss our findings further in detail.
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122 | Hidradenitis suppurativa in Saudi Arabia, quality of life measures

Yousef Binamer
Dermatology, King Faisal Specialist Hospital & Research Centre, Riyadh, Saudi Arabia

Background, Objectives and Methods: Hidradenitis Suppurativa (HS) is uncommon disease of follicular occlusion. It is characterized by recurrent multiple deep-seated abscess in flexural areas.
Results: Many patients in Saudi Arabia presents at later stages for multiple reasons, late diagnosis, inappropriate management or due to embarrassment. The quality of life of these patients is affected very much!. We have conducted different surveys to measure the quality of life of these patients. Dermatology life quality index, 6-item stigmatization and stigmatization survey, these were conducted in Arabic language.
Conclusion: The result of ours study indicated that these patients are suffering from a large impact on the psychological and emotional wellbeing.

137 | Hidradenitis suppurativa: The US perspective

Joslyn Kirby
Penn State, Hershey, USA

Background, Objectives, Methods and Results: Hidradenitis suppurativa (HS) has a higher prevalence among women, and importantly, among women at the ages of child-bearing potential. Recent research shows that women with HS perceive difficulty conceiving (9%) and 24% of women report it was due to reduced sexual interest or HS medications [1]. Women often had full-term pregnancies, but had higher rates of abortion (11%). Some women (22%) were concerned that HS would pose a risk for their child or themselves during. HS worsened in 62% of pregnancies. Women also had higher pregnancy complications including gestational hypertension and preeclampsia. After adjustment for comorbidities, women had higher odds of gestational hypertension (OR 1.37 (1.06-1.76)). There has been an increasing focus on pediatric HS, which is likely more prevalent than studies suggest, due to misdiagnosis [2]. Liy-Wong et al. published a series of 481 pediatric patients with HS and a second study of 1094 adolescents show a higher proportion of females, high rates of obesity, 50% have moderate-to-severe HS, and 80% report complications [3]. Most (84%) were seen by a pediatrician prior to their HS diagnosis. Multiple groups are focused on elucidating the pathogenesis of HS to inform HS treatment. The HS inflammatory infiltrate is diverse, with T cells, neutrophils, B cells, dendritic cells, and macrophages all contributing. The HS Prospective Observational Registry and Biospecimen Repository (HS PROGRESS) was launched to facilitate cross-country collaboration and was used to collect multi-national data during the Coronavirus pandemic [4].
Conclusion: This highlights the international scope of prior HS advances and the opportunities in continued international collaboration [5].
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148 | Hidradenitis suppurativa around the world - Canadian perspective

Mark G. Kirchhof
Medicine/Dermatology, The Ottawa Hospital, University of Ottawa, Ottawa, Canada

Background, Objectives and Methods: Canada is a country of 37 million people covering close to 10 million square kilometers. Canada is composed of 10 provinces and 3 territories. Canada is often described a multi-cultural mosaic. Healthcare in Canada is provided by a public government-run system with each province/territory being responsible for the delivery of healthcare. The geographic proximity to the United States but healthcare similarity to Europe makes it a unique place to practice medicine and care for patients with hidradenitis suppurativa (HS).
Results: It is estimated that 1-4% of the population in Canada have HS. HS patients in Canada are generally cared for by medical specialists, mainly dermatologists and family medicine practitioners. In this presentation, we will highlight some of the research on HS from Canada including recent papers on HS and Down's syndrome, arthritis and heart attacks. Canadian leaders in HS patient care and HS research will be lauded for their contributions to national and international HS initiatives. We will also explore therapeutic treatment options for HS in Canada including recent reports of weight loss, prednisone, certolizumab, guselkumab and up-dosed adalimumab (80 mg weekly). Canada is also an important contributor to clinical trials and we will review some of the clinical trials being conducted in Canada for HS.
Conclusion: This presentation will provide an overview of HS patient care, HS research, HS education initiatives, HS clinicals trials and the HS physicians in Canada.

Treatment Innovations (Clinical Trials, Local Treatment, Systemic Treatment, Surgical Treatment, Imaging)

114 | Effect of antibiotics in hidradenitis suppurativa: addressing the age-old dogmas of antibiotic use in inflammatory skin diseases - Part 1

Kelsey R. van Straalen[1,2]
[1]*Laboratory for Experimental Immunodermatology, Erasmus University Medical Center, Rotterdam, Netherlands;* [2]*Department of Dermatology, Erasmus University Medical Center, Rotterdam, Netherlands*

Background: Traditionally hidradenitis suppurativa (HS) has been treated with systemic antibiotics, which remain the first-line medical therapy to date. Current guidelines and consensus statements on the treatment of HS consistently recommend both tetracyclines and the combination of clindamycin with rifampicin as first-line treatment depending on disease severity. However, evidence for their efficacy of these treatments is drawn from small studies, often without validated outcomes.
Objectives and Methods: Therefore, the 12-week efficacy of oral tetracyclines and a combination of clindamycin and rifampicin was recently assessed in a prospective, international European cohort study including 15 centers.
Results: In total, 63.6% of the included 283 patients received oral tetracyclines and 36.4% were treated with clindamycin and rifampicin. HiSCR was achieved in respectively 40.1% and 48.2% of patients after 12 weeks ($p = 0.26$). Both groups showed a significant decrease in IHS4 from baseline; from a median of 9.0 [5.0-18.5] to 5.0 [2.0-12.0] ($p < 0.001$) in the tetracycline group and from 13.0 [6.0-27.0] to 6.0 [1.0-17.0] ($p < 0.001$) in the combination therapy group (both $p < 0.001$). Patient characteristics or disease severity were not associated with attainment of HiSCR or the minimal clinically important differences for DLQI and NRS pain.
Conclusion: This study shows similar significant efficacy of both tetracycline treatment and clindamycin and rifampicin combination therapy after 12 weeks in patients with HS, regardless of disease severity. These results might suggest that tetracyclines could be considered as first-line treatment in patients with moderate-to-severe disease, and failure to tetracyclines may be a sufficient indication for the initiation of biologic therapy.
Acknowledgements: The Department of Dermatology, Erasmus University Medical Center, Rotterdam, Netherlands is a health care provider of the European Reference Network for Rare and Complex Skin Diseases (ERN Skin).

156 | Effect of antibiotics in hidradenitis suppurativa: addressing the age-old dogmas of antibiotic use in skin inflammatory diseases - Part 2

Olivier Join-Lambert
Department of Microbiology, Research Group on Microbial Adaptation, Caen Normandie University, Caen, France

Background: Hidradenitis suppurativa is a follicular inflammatory disease where bacteria likely play an important pro-inflammatory role. The disease responds to targeted antimicrobial treatments but in an area of increasing antimicrobial resistance, the prolonged and repeated use of antibiotics is worrisome. Alternative medical treatments are lacking to treat the mild form of the disease (Hurley stage 1 patients) who represent the vast majority of patients.
Objectives and Methods: Current guidelines statements on the treatment of HS consistently recommend both tetracyclines and the combination of clindamycin with rifampicin as first-line treatment depending on disease severity. However, evidence for their efficacy is drawn from small studies, often without validated outcomes. This is why an European consortium of Dermatologists recently assessed the 12-week efficacy of oral tetracyclines and of the clindamycin - rifampicin combination in patients with various clinical severity stages.
Results: HiSCR was achieved in 40.1% and 48.2% of patients, respectively ($p = 0.26$), independently of the clinical severity of the disease. Although not statistically significant, the response rate tended to be higher in patients treated with the clindamycin-rifampin combination which included a higher proportion of Hurley stage 2 and 3 patients. The response rate of Hurley stage 1 patients, which represented the vast majority of patients was surprisingly not higher than that of more severe patients.
Conclusion: These results will be discussed in the light of the microbiology of HS, antimicrobial spectrum and dosing regimen of antibiotics, bactericidal/bacteriostatic activity, propensity to induce antimicrobial resistance and clinical severity of the disease.

188 | The bacterial microbiome of early inflammatory nodules in hidradenitis suppurativa: an exploratory cross-sectional study

Simone Garcovich[1,2]; Flavio De Maio[3,4]; Clara De Simone[1,2]; Brunella Posteraro[3,4]; Ketty Peris[1,2]; Maurizio Sanguinetti[3,4]
[1]*Dermatology, Fondazione Policlinico Gemelli IRCCS, Rome, Italy;* [2]*Dermatology, Università Cattolica del Sacro Cuore, Rome, Italy;* [3]*Dipartimento di Scienze di Laboratorio e Infettivologiche, Fondazione Policlinico Gemelli IRCCS, Rome, Italy;* [4]*Dipartimento di Scienze Biotecnologiche di Base, Cliniche Intensivologiche e Perioperatorie, Università Cattolica del Sacro Cuore, Rome, Italy*

Background: Bacterial dysbiosis has been reported across all stage of hidradenitis suppurativa (HS). Inflammatory nodules are considered the initial step of the lesional spectrum and main clinical outcome measure [1-5].
Objectives: Our aim was to investigate the bacterial composition of inflammatory nodules using NGS targeting 16S ribosomal RNA.
Methods: a monocentric cross-sectional study on inflammatory nodular lesions of HS patients, with non-lesional regional skin as internal control. Samples were obtained by skin biopsy and aseptic technique. Microbial population was evaluated by sequencing the hypervariable regions V3-V4 of the 16S ribosomal RNA gene.
Results: In total, 11 patients with symptomatic HS, and corresponding 22 skin samples (11 nodules or lesional HS skin and 11 non-lesional skin samples, axillary and inguinal regions), were recruited. Patient's demographic and clinical characteristics were representative of typical, moderate HS cases (Hurley I-II) in absence of active treatment. Microbial richness (Shannon) was trending lower in lesional skin, compared to non-lesional, as in the case of species evenness (pielou's index). Unweighted unifrac beta diversity was not different across samples (lesional vs. non-lesional), suggesting a strong similarity among non-lesional and lesional samples. Relative abundances of *Prevotella* (*Bacteroidetes*) and *Staphylococcus* (*Firmicutes*) was confirmed to increase in lesional inflammatory nodules compared to non-lesional skin.
Conclusion: Our study suggest a similar microbial profile of inflammatory-nodular and non-lesional skin. Limitations of this study include a cross-sectional design, limited sample size and lack of external healthy control subjects. Future interventional studies should target early bacterial dysbiosis with a combination of antibiotics, probiotics and physical treatment.
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117 | Response to targeted antibiotherapy in 39 hidradenitis suppurativa patients after failure of a biotherapy

Maïa Delage-Toriel[1]; Catherine Pierre-Audigier[1]; Kaoutar Jidar[1]; Paul-Henri Consigny[1]; Olivier Join-Lambert[2]; Aude Nassif[1]
[1]*Institut Pasteur, Medical Center, Paris, France;* [2]*Microbiology Department, Centre Hospitalier Universitaire de Caen, Caen, France*

Background and Objectives: We report the evolution of 39 hidradenitis suppurativa (HS) patients treated with a targeted antibiotherapy after failure of a biotherapy.
Methods: Within our list of HS patients at Pasteur Medical Center, we retrospectively studied the 1-year clinical evolution of patients referred after failure of biotherapy. All patients received a targeted antibiotherapy adapted to Hurley stage (based on the combination rifampin+moxifloxacin+metronidazole, preceded by IV betalactam antibiotics in Hurley stage 2 and 3 patients) [1-4]. Responses were assessed as complete remission (no inflammatory lesion), improvement (decrease in number or size of involved areas and of inflammation) or failure (absence of remission/improvement).
Results: 39 patients were assessable. Results are described in Table 1. 51% patients continued biotherapy during the treatment. At Month 3, 87% were improved or in remission, at Month 6, 68% and at 1 year, 60%.
Discussion: Targeted antibiotherapy can improve patients with an active HS despite a failure of a biotherapy on their HS. Relapses can occur during follow-up and often require surgery. The biotherapy can be continued, in particular if it is useful for the inflammatory comorbidity. The outcome in the group of patients continuing biotherapy was not better in comparison with the group interrupting biotherapy. The limitations of this study are a small number of patients for each biotherapy and the retrospective analysis.
Conclusion: Targeted antibiotherapy can be useful for HS patients after failure or insufficient improvement with a biotherapy.

TABLE 1 Patients characteristics. AS = ankylosing spondylitis, UC = ulcerative colitis, n = pat number

	Number of patients	Percentage (%)
Women	22/39	56
IMC > 25	17/39	44
Active smokers	21/34	62
Hurley Stage 1	7/39	18
Hurley Stage 2	14/39	36
Hurley Stage 3	18/39	46
Biotherapy: Adalimumab/ Infliximab/others	27/8/4	69/21/10
Indication Biotherapy: HS/Crohn/AS/UC	17/20/1/1	44/51/2.5/2.5
TA: oral antibiotics/ceftriaxone/ertapenem	9/10/20	23/26/51
Remission or improvement at Month 3	34/39	87
Remission or improvement at Month 6	25/37	68
Remission or improvement at Month 12	18/30	60
Remission or improvement at Month 3 when biotherapy is continued	17/20	85
Remission or improvement at Month 6 when biotherapy is continued	14/19	74
Remission or improvement at Month 12 when biotherapy is continued	10/16	63

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155 | Intravenous antibiotics as adjunctive treatment in severe hidradenitis suppurativa: quick to respond, quick to relapse

Anna Dubois; Stephanie Ball; Simon Meggitt; Philip Hampton
Department of Dermatology, Royal Victoria Infirmary, Newcastle upon Tyne, UK

Background: The role of bacteria in the pathogenesis of hidradenitis suppurativa (HS) is unclear, but flares of the disease have features of bacterial infection and the use of broad-spectrum intravenous antibiotics is reported as efficacious [1].
Objectives: Whilst antibiotic administration can lead to improvement of symptoms, these benefits may not persist after cessation of treatment.
Methods: We assessed ten patients with Hurley stage three HS treated with intravenous antibiotics in our department over the past twelve months. All patients had highly suppurative disease and were admitted to hospital on an urgent basis. Eight were already receiving treatment with either adalimumab or infliximab, and two were commenced on anti-TNF therapy during their admission.
Results: Patient ages ranged from 20 to 58. All received intravenous meropenem 1 g or 2 g TDS, with a mean duration of 9 days (range 6-14). 9/10 patients had a good response to treatment, with reduction in drainage and pain confirmed by clinical assessment and patient history. Outpatient review approximately one month later demonstrated that, of the nine responders, seven had relapsed to their baseline level of disease. Interestingly, the two patients who did not relapse were commenced on anti-TNF therapy during or immediately after their course of antibiotics.
Conclusion: Disappointingly, the initial response to meropenem was rarely sustained in our severe cohort, but it is possible that preconditioning with antibiotics could play a role in optimising disease control prior to anti-TNF treatment. Further studies to define the role of intravenous antibiotics in the management of refractory HS are clearly a priority.
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110 | Short courses of ertapenem as a part of conservative treatment strategy in severe hidradenitis suppurativa

Evgeniya H. Hristakieva[1,2]; Tanya T. Gancheva[1,2]; Karen L. Manuelyan[1,2]; Rositsa V. Lavcheva[1,2]; Radostina S. Deliyska[1,2]
[1]*Dermatology and Venereology, Faculty of Medicine, Trakia University, Stara Zagora, Bulgaria;* [2]*Clinic of Dermatology and Venereology, University Hospital, Stara Zagora, Bulgaria*

Background: Ertapenem is a carbapenem antibiotic, which has been used in all stages of hidradenitis suppurativa (HS) for courses ranging from 6 weeks to 6 months. We present preliminary results from a prospective uncontrolled study, evaluating the treatment HS outcome with three short courses of Ertapenem, in combination with other systemic treatments or as single systemic agent.
Objectives: To assess the efficacy and safety of short courses of Ertapenem in severe HS.
Methods: Patients with severe HS in Hurley Stage III and IHS4 > 11 were started on Ertapenem 1 g daily i.v., given in three intermittent 10-day courses in an inpatient setting. 13 patients had been receiving standardized long-term treatment with a triple "MCK" regimen of Metronidazole (500 mg bid with reduction to 250 mg qd), Colchicine (0.5 mg bid with reduction to 0.5 mg qd) and Ketotifen (1 mg bid) for 4 months. One patient was on Adalimumab. The monitoring protocol included standard blood tests, microbiology swabs, HiSCR and VAS.
Results: At this preliminary study stage, 3/15 patients received three 10-day courses, 5/15 two courses and 6/15 one course of Ertapenem. According to the HiSCR and VAS, 13/15 patients are responders. Treatment with Ertapenem was discontinued in one patient, who developed an urticarial adverse drug reaction. The combination treatment was generally well tolerated.
Conclusion: In our experience short intermittent courses of Ertapenem can be effective and well tolerated for control of severe HS, in addition to other already established systemic treatments. Further controlled studies are needed to identify optimal treatment regimens.

135 | LAight® therapy improves Hidradenitis Suppurativa

Lukasz Matusiak
Department of Dermatology, Venereology and Allergology, Wroclaw Medical University, Wroclaw, Poland

Background: Treatment options for HS involve both – conservative and surgical approach. Surgery is usually considered the only effective treatment option in the most advanced cases, while conservative

therapy does not cure irreversible skin tissue damage caused by HS. Many patients decline radical surgical approach. It is believed that a non-invasive approach (e.g. LAight® therapy) could be a promising alternative for this group of HS patients.

Objectives: The LAight® therapy (LENICURA, Germany) is a CE-approved, non-invasive treatment option for all HS severities, which utilizes a combination of radiofrequency (RF) and intense pulsed light (IPL).

Methods and Results: It was revealed that IPL reduced inflammation in patients with HS via reduction of IL-1a and ICMA-1. Moreover, RF may stimulate collagen remodelling, leading to improvement in the texture of the scars and mediates liquefaction of enclosed lipids, releasing blockage of the hair follicles, which is one of the major initial causes of development of HS. The recently conducted RELIEVE study (on 88 HS patients) revealed that 16 weeks of LAight® treatment resulted with significantly higher reduction of IHS4 scores in the combination of LAight® therapy and topical clindamycin 1% solution group (-7.2 ± 6.7 points) vs. group treated with clindamycin 1% solution alone (-1.8 ± 5.6 points) ($p < 0.001$). Similar efficacy was also found with regard to DLQI scores, and pain reduction assessed with NRS.

Conclusion: Based on available literature data, LAight® therapy is proving to be an effective and safe treatment option, which may lead to consideration for inclusion of this modality in HS therapeutic algorithm in the near future.

47 | Evaluation of barriers to therapeutic drug monitoring in the management of hidradenitis suppurativa

Yuval Hilerowicz[1,2]; Nicole Levin[2,5]; Jayesh Palmar[6]; Afsaneh Halavi[3,4]; Hadar Lev-Tov[2]

[1]Dermatology, Tel Aviv University, Tel Aviv, Israel; [2]Dr. Phillip Frost Department of Dermatology & Cutaneous Surgery, University of Miami, Miami, FL, USA; [3]Dermatology, Mayo Clinic – Rochester, Rochester, MN, USA; [4]Women's College Hospital, Medicine, Toronto, Canada; [5]Charles E. Schmidt College of Medicine, Florida Atlantic University, Boca Raton, FL, USA; [6]Larkin University, Clinical and Administrative Sciences, Miami, FL, USA

Background: Therapeutic drug monitoring (TDM) may improve the efficacy and cost-effectiveness of anti-TNF therapy. Given the high rate of treatment failure and successful implementation in similar diseases, TDM may improve treatment outcomes. However, a standardized approach of utilizing TDM has not been established for treatment of HS.

Objectives: The objective of this study was to determine the attitudes and barriers of physicians who treat hidradenitis suppurativa (HS) toward use of TDM of anti-TNF therapy in clinical practice.

Methods: An 22-question survey was distributed to a few international HS physicians mailing lists. We collected physician characteristics, practice demographics, and data regarding TDM use and perceived barriers to TDM. Factors associated with the use of TDM were determined by logistic regression analysis.

Results: A total of 37 physicians responded. 40% use TDM, mostly reactively for treatment failure. The greatest barriers to TDM implementation were uncertainty about insurance coverage or high out-of-pocket patient costs (49%), and overall lack of knowledge about TDM or lack of evidence (24%). Factors independently associated with the use of TDM was the number of HS patients seen per month ($P < 0.05$). If all barriers were removed 81% of physicians would apply TDM more.

Conclusion: Lack of insurance coverage, high out-of-pocket costs, and lack of knowledge limit use of TDM. Validation of low-cost assays, point of care testing, and studies that standardize the use of TDM are needed to make TDM more commonplace.

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105 | Update on clinical trials in hidradenitis suppurativa

Wayne P. Gulliver

Memorial University of Newfoundland, Faculty of Medicine, St. John's, Canada

Background: The approval of Adalimumab for the treatment of hidradenitis suppurativa (HS) in 2016 has generated significant interest in this common debilitating and stigmatizing autoinflammatory disorder.

Objectives: The study of immunopathogenesis and genetics of HS have identified multiple potential therapeutic targets.

Methods and Results: ClinicalTrials.gov lists 111 trials with 25 new therapies in trials for the for the purpose of registration. The new targets include C5A, IL-17, IL-23 and JAKs, just to name a few. Early data suggests targeting IL-17 is helpful. A recently published IIT using Secukinumab reported a HiSCR 50 of 70% at week 24 with a

75% reduction in AN count of 35% at week 24. A phase 2 RCT head-to-head study of Bimekizumab and Adalimumab has certainly raised the therapeutic bar with 50% of patients treated with Bimekizumab reaching HiSCR 75 versus 38.9% for Adalimumab achieving this therapeutic target, HiSCR 90 was achieved in 35% of the Bimekizumab patients versus 0% of the placebo patients. Both treatments performed equally well in achieving a HiSCR of 50. Targeting C5A may also be of therapeutic benefit. Recent studies have shown that although C5A did not reach its primary endpoint, it did reach multiple secondary endpoints, demonstrating benefit in the HS patients. Other trials are ongoing targeting JAKs, IL-23 and 17.

Conclusion: We will await the results of these ongoing trials hoping that we will continue to raise the therapeutic bar in HS as we did in psoriasis and soon achieving HiSCR 75 in 90% of HS patients.

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102 | Clinical trials: on-going options for medical treatment

Evangelos J. Giamarellos-Bourboulis

4th Department of Internal Medicine, National and Kapodistrian University of Athens, Athens, Greece

Background: Despite the COVID-19 pandemic, the activity of running clinical trials remains high.

Objectives and Methods: This is shown after a search at the database of Clinicaltrias.gov using the search terms “Hidradenitis suppurativa” and “Recruiting” and “Interventional”.

Results and Conclusion: Search retrieved 21 recruiting studies, among which 12 are clinical trials of biologicals. The trials with biologicals may be classified as follows: a) one phase 1 trial of the safety of the recombinant anti-granulocyte colony-stimulating factor (G-CSF) CSL324; b) five phase 2 trials investigating the efficacy of the novel agents CFZ533 and LYS006 (one study), LY3041658 (one study), INCB054707 (one study), and PF-06650833, PF-06700841 and PF-06826647 (one study) and upadacitinib (one study); b) five phase 3 trials with bimekizumab (two studies) and secukinumab (three studies); and d) one phase 4 study of adalimumab. The most common endpoints are HS clinical response (ten studies) and the time to loss of response (two studies). The main targeted molecules are tumour necrosis factor, interleukin (IL)-17, CD40, chemokines like CXCR1, leukotrienes and Janus kinases. Among the studied compounds two monoclonal antibodies targeting IL-17, namely secukinumab and bimekizumab, are promising to become registered for the medical treatment of moderate to severe HS since they are already at phase 3 stage of development. Other molecules with promising efficacy under development without, however, their clinical trials to be on recruitment are bermekimab (targeting IL-1alpha), brodalumab (targeting IL-17 receptor antagonist), risankizumab and guselkumab (targeting IL-23A), ustekinumab (targeting IL-12/IL-23), IFX-1 (targeting complement split product C5a) and avacopan (targeting C5a receptor).

154 | Seven years-experience of adalimumab therapy for hidradenitis suppurativa in a real-life dermatologic setting

Vincenzo Bettoli; Giulia Odorici; Lucrezia Pacetti; Riccardo Forconi; Natale Schettini; Pierantonia Zedde; Monica Corazza

Azienda Ospedaliera - University of Ferrara, Ferrara, Italy

Background: Hidradenitis Suppurativa (HS) is a complex, often severe, inflammatory and relapsing disease. Adalimumab is currently the only biologic therapy approved.

Objectives and Methods: We retrospectively review the data of HS patients treated with adalimumab at the “Hidradenitis Suppurativa Clinic”, University of Ferrara, Italy, aiming to report the practical insights picked up in real-life experience. Therapy duration, reasons of suspension, efficacy in relation to surgical procedures, hospitalization, areas involved, BMI > 30 and the efficacy of adalimumab’s biosimilar were assessed.

Results: Seventy-six patients (36 F and 40 M), with a mean age of 38.26 ± 14.74 years and mean BMI 28.10 ± 5.92 were studied. A statistically significant correlation between hospitalization and cessation of adalimumab, the loss of the achievement of the HiSCR and surgery was found. The role of surgery in association with adalimumab and the relevance of an adequate timing have been observed. Biosimilars are nowadays largely used in Italy as a consequence of a complex evolution, more political than scientific, of the pharmacological approach to many diseases, HS included.

Conclusion: Adalimumab is a useful choice in most HS patients but, in author’s experience, to get a major effect it should be used as soon as possible provided no specific contraindications are present. Uncertainties regarding potentially inferior efficacy of the biosimilar are still a matter of debate, in particular regarding the switch when the treatment is ongoing. Although safety was assured in every case, in our experience the switch from the originator to a biosimilar not always resulted in the maintenance of efficacy.

147 | Interest of an Infliximab boost before adalimumab treatment in severe inflammatory hidradenitis suppurativa

Pierre-Andre Becherel; Marina Thomas; Melanie Dehais; Sophie Raccah; Jean-Christophe Moreno
Dermatology and Clinical Immunology, Antony Hospital, Antony, France

Background and Objectives: In severe (Hurley II and III) HS, after antibiotics failure, adalimumab is a second line alternative. Despite an induction dose of 160 mg, HiSCR in PIONEER studies is only reached in about 50% of patients at W16. We investigated the interest of an initial infliximab boost at 10 mg/kg 2 weeks before the introduction of adalimumab at usual HS doses. Indeed, in very inflammatory forms, it is likely that the intensity of inflammation may sometimes hinder the optimal effectiveness of adalimumab, and that an initial IV treatment may significantly reduce the inflammation before the onset of adalimumab. For this we selected patients in stages II and III, with an ISH4 score >11, and not more than 1 abscess, to retain only very inflammatory forms.
Methods: 21 patients were so treated and the results were first evaluated at week 16, and week 28. 20 patients in the control group received only adalimumab at the conventional dose for HS. Inflammation was evaluated by CRP.
Results: 15 out of 21 patients reached HiSCR (71%) in the protocol group. 11/20 in the control group (55%) ($p = 0.01$). Average ISH4 decreased from 15 to 6 in the protocol group, from 14 to 10 in control group ($p = 0.015$)
Conclusion: In this opened study, IFX seems to have an interest when prescribed at high dose (10 mg) in severe inflammatory forms of HS, to decrease inflammation before adalimumab induction. A longer term extension study is ongoing in our hospital.

50 | Drug survival of adalimumab and infliximab in hidradenitis suppurativa patients: a daily practice cohort study

Lisette M. Prens[1]; Klasiena Bouwman[1]; Pim Aarts[2]; Suzanne Arends[3]; Kelsey R. van Straalen[2]; Koen Dudink[2]; Hessel H. van der Zee[2]; Errol P. Prens[2]; Barbara Horváth[1]
[1]Dermatology, University Medical Center Groningen, Groningen, Netherlands; [2]Dermatology, University Medical Center Rotterdam, Rotterdam, Netherlands; [3]Department of Rheumatology and Clinical Immunology, University Medical Center Groningen, Groningen, Netherlands

Background: Biologics are often required for treatment of hidradenitis suppurativa (HS). However, data on the drug survival of biologics in daily practice are currently lacking.
Objectives: To assess the drug survival of anti-TNF biologics in a daily practice cohort of HS patients and to identify predictors for drug survival.
Methods: A retrospective multicenter study was performed in two academic dermatology centers in The Netherlands. Adult HS patients using biologics between 2008 and 2020 were included. Drug survival was analyzed using Kaplan Meier survival curves, predictors of survival using univariate Cox regression analysis.
Results: Overall drug survival of adalimumab (n = 104) at 12 and 24 months was 56.3% and 30.5%, mostly due to ineffectiveness. Older age ($p = 0.01$) and longer disease duration ($p = 0.01$) were associated with longer survival time. For infliximab (n = 44), the overall drug survival was 58.3% and 48.6% at 12 and 24 months and was predominantly determined by infectiveness and side-effects. Surgery during treatment ($p < 0.01$) was associated with a longer survival time.
Conclusion: Survival rates are comparable for adalimumab and infliximab at 12 months and are mainly determined by ineffectiveness. Age, disease duration (adalimumab) and surgery (infliximab) are predictors for longer survival.
Acknowledgements: The Department of Dermatology, Erasmus University Medical Center, Rotterdam, Netherlands is a health care provider of the European Reference Network for Rare and Complex Skin Diseases (ERN Skin).

5 | A randomized, placebo-controlled, phase 2 study of the Janus Kinase 1 inhibitor INCB054707 for patients with moderate-to-severe hidradenitis suppurativa

Afsaneh Alavi[1,2]; Iltefat Hamzavi[3]; Kurt Brown[4]; Leandro L. Santos[4]; Zhaoyin Zhu[4]; Michael D. Howell[4]; Joslyn Kirby[5]
[1]Mayo Clinic, Rochester, USA; [2]York Dermatology and Research Centre, Richmond Hill, Canada; [3]Henry Ford Medical Center, Detroit, USA; [4]Incyte Corporation, Wilmington, USA; [5]Penn State Health Milton S. Hershey Medical Center, Hershey, USA

Background: Janus kinase (JAK)-mediated cytokine signaling contributes to local and systemic inflammation in hidradenitis suppurativa (HS).
Objectives: We describe results from a multicenter phase 2 trial of the JAK1 inhibitor INCB054707 in patients with HS.
Methods: This was a placebo-controlled, dose-escalation study; patients received INCB054707 once daily (30-, 60- or 90-mg cohorts) or placebo (3:1 randomization per cohort) for 8 weeks, with a 30-day safety follow-up. Patients aged 18–75 years with moderate-to-severe HS of ≥6-months' duration, lesions in ≥2 anatomic locations (Hurley stage II/III), and total abscess and inflammatory nodule count of ≥3 were eligible. The primary endpoint was safety and tolerability. Additional endpoints included HS Clinical Response (HiSCR), HS quality of life (HiSQoL), and peripheral blood biomarkers.
Results: Thirty-five patients were enrolled (median [range] age, 45.0 [18–64] years; 80% female; 89% white; 71% Hurley stage II at baseline). Nine patients were randomized to placebo and 26 to INCB054707 (30 mg, n = 9; 60 mg, n = 9; 90 mg, n = 8). Overall, 81% of patients receiving INCB054707 had ≥1 treatment-emergent adverse event (TEAE; 12% grade 3, all thrombocytopenia at 90 mg); no discontinuations resulted from TEAEs. More patients receiving

90 mg INCB054707 than placebo had Week 8 HiSCR (88% vs 57%; Figure 1). Mean change from baseline in Week 8 HiSQoL was greater for patients treated with INCB054707 (range across doses, −28.0 to −39.0) vs placebo (−3.4). Biomarker analysis demonstrated dose-dependent differences in the modulation of inflammatory mediators.
Conclusion: INCB054707 was well generally tolerated, demonstrated preliminary efficacy, and improved QoL in patients with moderate-to-severe HS.

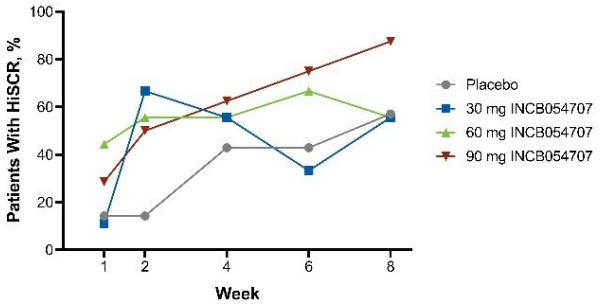

FIGURE 1 Proportion of Patients With HiSCR at Each Study Visit. HiSCR, Hidradenitis Suppurativa Clinical Response

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153 | What does/can the surgeon expect from the association of surgery with hidradenitis suppurativa-targeted medical treatments? A systematic review

Philippe Guillem[1]
[1]*Department of Surgery, Clinique du Val d'Ouest, Lyon, France;*
[2]*RésoVerneuil, Paris, France*

Background and objectives: As biotherapies currently disrupt the management of HS, it remains to be determined what HS-targeted medical treatments can bring to surgery.
Methods: A literature search for articles was conducted using the PubMed database and a filter to include only studies comparing surgery with a combination of surgery and any medical treatment.
Results: Only 6 studies could be included evaluating the adjunct of local antibiotics (n = 2 studies), other topics (n = 1), prednisone (n = 1) and/or biologics (n = 5) to surgery (Table 1). These studies evaluated how the medical treatment affected the rate of postoperative complications (n = 1; reduced complication rate at 1 postoperative week), postoperative healing (n = 3; no effect of local antibiotics, delayed healing with biologics), quality of life (n = 1; no effect of antibiotics and topics), local recurrence (rate and disease-free survival, n = 2; contradictory), and overall disease control (n = 2; contradictory). The low number of the studies and the strong heterogeneity in the indications of surgery (variable proportion of Hurley III) and in the used judgement criteria prevent generalization of the results. No study assessed other essential aspects for the surgeon: indication for surgery, type and extent of the surgical procedure, and the rate of curative surgical cure of the lesion. No cost-benefit evaluation was performed.
Conclusion: There is an urgent need to evaluate how a pre-, per-, post- or peri-operative medical treatment affect outcomes after surgery. How the surgical procedure is affected in its intrinsic performance should also be evaluated (indication, timing, type, complications, curative rate, healing), along with the cost-benefit balance.

TABLE 1 Value of the addition of a medical treatment to surgery - A systematic review

Ref	Study design	Patients	Type of surgery	Medical treatment		Surgery + medical	Surgery alone	
Baimer 2008	Prospective	N=200 (H : NA)	Local excision + primary closure	Local antibiotics at surgery time (gentamycin sponge) (assignation: randomized)	Nber. of patients	N=124	N=76	
					Complication rate at 1 week	35%	41%	P=0.03
					Complication rate at 3 months	20%	18%	NS
					Wound closure	8.35 weeks	8.02 weeks	NS
					Recovery rate	35%	65%	NA
					Recurrence rate	42%	40%	NS
DeFazio 2016	Retrospective	N=21 (HIII: 100%) (37 procedures)	Radical excision and delayed closure	Biologics[a] started between postop d14 and d20 (assignation: patient choice)	Nber. of patients	N=11	N=10	
					Recurrence rate	19%	88.5%	P<0.001
Shanmugan 2018	Prospective	N=68 (HIII: 63%)	NA	Biologics[b] (assignation: clinical criteria)	Nber. of patients	NA[c]	NA[c]	
					Mean drop in MSS	42	15	P=0.013[c]
					Mean drop in AN count	1.5	2.4	P<0.015[c]
					Combination therapy was associated with a higher probability of achieving AN75 than surgery alone: adjusted hazard ratio: 2.88 (1.62–5.13, P = 0.047)			
Prens 2019	Prospective	N=39 (HIII: 10%)	Major excision + SHI	Biologics[d] (assignation: clinical criteria)	Nber. of patients	N=1	N=34	
					Wound closure	183 days	68 days	P<0.001
Grimstad 2019	Retrospective	N=255 (HIII: 14%)	CO2 laser excision or debriefing	Antibiotics and/or topics (assignation: clinical criteria)	Nber. of patients	N=151	N=19	
					DLQI MCID	47%	55%	NS
					NRS30	47%	50%	NS
Touhouche 2020	Prospective	N=49 (H : NA)	Partial or wide excision	Biologics[e] (assignation: clinical criteria)	Nber. of patients	N=7	N=4	
					Mean drop in MSS	- 15.2	- 12.5	NA
Worden 2020	Retrospective	N=248 (HIII: 59%) (27% of the procedures)	Incision: (58%) Excision + SHI (45%) or primary closure (17%)	Immunomodulators[f] (assignation: clinical criteria)	57 patients had medical treatment. The fact that treatment has not been stopped at least 2 weeks before surgery is a negative predictor of healing: odds ratio, 0.23; P = 0.004			

[a] adalimumab, n=3 ; infliximab, n=8
[b] infliximab, ustekinumab, or adalimumab
[c] statistical significance as available for logistic regression taking into account results for patients who underwent biologics and/or surgery (not only comparing surgery + biologics vs surgery alone)
[d] adalimumab, n=4 ; infliximab, n=1
[e] infliximab, anakinra + etanercept, or adalimumab
[f] prednisone, infliximab, or adalimumab
AN count: active nodule count (total number of abscesses and inflammatory nodules); AN75: reduction of AN count by 75%; DLQI MCID: Minimal clinically Important Difference for Dermatological Quality of Life Index (≥ 4-unit decrease); HIII: Hurley stage III; MSS: modified Sartorius Score; NA: not available; NRS30: reduction a ≥ 30% if the pain numeric rating scale; NS: non significant; SHI: secondary healing intention

168 | Tumescence vs. general anesthesia: a precious alternative in large hidradenitis suppurativa surgery learned due to the COVID-19 pandemic

Maurizio Podda, Ernst Hasche, Maximilian Kovács
Department of Dermatology, Medical Center Klinikum Darmstadt, Teaching Hospital Goethe-University Frankfurt, Darmstadt, Germany

Background: Surgery alone or in combination with medical treatment is a mainstay in the treatment of hidradenitis suppurativa (HS). The form of anesthesia used for surgical procedures in HS varies upon the procedure itself, the localisation and especially the extent of tissue to be removed. Furthermore, a bias for an anesthesiologic method may be caused by the "school" in which the surgeon has learned to perform each procedure.
Objectives: Since the anesthesia plays a secondary role for the surgical outcome, only few publications focus on or even mention the form of anesthesia used in HS surgery.
Methods: Overall local anesthesia is the mainstay for smaller surgery while tumescence local anesthesia or general anesthesia are the choice for wide excisions of larger areas. Surgery in the perianal region is usually performed in general anesthesia.
Results and Conclusion: During the COVID-19 Pandemic we and other centers had to largely restrict HS surgical procedures especially the ones that needed an anesthesiologist to spare their

workforce for the intensive care units and to avoid any unneeded postsurgical case in intensive care. Nevertheless, there stayed the need for help in our HS patients. We therefore extended the use of tumescence local anesthesia (TLA) to a maximum in order to be able to perform needed wide excisions, especially due to the extended course of the COVID-19 Pandemic. We will present our cases and modalities using TLA in HS surgery instead of general anesthesia and based on our findings suggest that TLA should be considered more often in large and very large HS surgery also in the post-pandemic future.

115 | Reduction of wound healing disorders in surgical reconstruction of hidradenitis suppurativa with primary wound closure by therapy with adalimumab

Gefion Girbig[1]; Natalia Kirsten[1]; Matthias Augustin[1]; Marco Blessmann[2]; Katharina Grupp[2]; Florian Knoll[2]
[1]*Institute for Health Services Research in Dermatology and Nursing (IVDP), University Medical Center Hamburg (UKE), Hamburg, Germany*; [2]*Department of Plastic, Reconstructive and Aesthetic Surgery, University Medical Center Hamburg (UKE), Hamburg, Germany*

Background: Hidradenitis suppurativa (HS) is a chronic inflammatory skin disease that particularly affects areas of the body rich in hair follicles. For a long time surgical treatment was considered the most promising therapeutic option. With the approval of the systemic therapy with adalimumab a new successful therapy option was added. Despite the good inflammation control residual mutilating fistulas often remain under adalimumab and require surgical reconstruction.
Objectives: In surgical reconstruction of HS primary wound closure is controversial. Frequently wound healing disorders are observed in primary wound closure in the context of the underlying inflammatory disease, which is why many surgeons initially prefer secondary wound healing.
Methods: In a retrospective study we investigated the surgical outcomes of our HS patients under systemic therapy with adalimumab. As we see the wound healing disorder as a consequence of the underlying disease, our patients are first treated anti-inflammatory with adalimumab for at least six months and only then surgically reconstructed under this systemic therapy.
Results: From 2017-2020 21 patients underwent surgery with primary wound closure. Wound healing disorders occurred in only three out of 21 cases. The three wound healing disorders were each inflammatory reactions without evidence of infection.
Conclusion: Despite the therapeutic option of adalimumab surgical reconstruction is still frequently necessary in HS. Our first study results show that under ongoing therapy with adalimumab, wound healing disturbances occur less frequently with primary wound closure. The advantages of primary wound closure are shorter length of stay, lower morbidity and fewer functional problems.

106 | Imaging technologies in Hidradenitis Suppurativa: From theory to the clinical practice

Antonio Martorell
Hospital Manises, Dermatology Department, Valencia, Spain

Background: Until recently, clinical assessment with manual palpation of the Hidradenitis Suppurativa (HS) lesions was the primary means to detect HS lesions and their borders [1].
Objectives: In the past decade, there has been increased application of imaging technologies to HS patients, and it is reported that manual palpation consistently underestimates HS [2-4].
Methods, Results and Conclusion: Of the technologies, ultrasound (US) imaging, has been the most efficacious and well-studied [2-4]. However, other imaging tests, including Magnetic Resonance Imaging (MRI) and Thermography can be helpful in certain situations. In the same way, Positron Emission Topography (PET) and computed tomography (CT) have been considered by some authors as two potential alternative tests for HS patients. During this lecture we will make an evaluation of all these tests based on the real expert clinical practice in order to define which are the most efficient test that can improve our clinical practice by improving our HS patient care [5]. We will also introduce the latest advances in the application of Artificial intelligence in generating quantitative imaging reports, that will allow us to develop predictive medicine and to take better and more accurate decisions in the near future.
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164 | Thermography and Hyperspectral Imaging (HSI) modalities showing 3D-perfusion analysis for diagnosis and management of hidradenitis suppurativa/acne inversa

Thomas Wild[1,2]; Ahmet Aljowder[1]; Georg Daeschlein[1,4]; Kristian Weissenberg[2]; Diogo Cruz[2]; Jan Marotz[4]; Dietrich Trebing[1]; Christos C. Zouboulis[1,3]

[1]Departments of Dermatology, Venereology, Allergology and Immunology, Dessau Medical Center, Brandenburg Medical School Theodor Fontane and Faculty of Health Sciences Brandenburg, Dessau, Germany; [2]Dessau Medical Center, Department of Plastic, Aesthetic and Hand Surgery, Dessau, Germany; [3]European Hidradenitis Suppurativa Foundation e.V., Dessau, Germany; [4]University of Applied Science Anhalt, Institute of Applied Bioscience and Process Management, Bernburg, Germany

Background: Hidradenitis suppurativa/acne inversa (HS) is a recurrent, chronic, inflammatory and debilitating skin disease of the hair follicle. HS usually presents after puberty with deep-seated, extremely painful, inflamed lesions in the apocrine gland-bearing areas of the body, commonly the axillae, inguinal and anogenital regions as well as skin folds developed in obese patients [1]. HS is diagnosed and classified using ultrasound sonography and the International HS Severity Score System (IHS4) based on the degree of skin inflammation and severity of active disease. A mean disease incidence of 6.0 per 100 000 person-years and an average prevalence of 1% has been reported in Europe. HS has a high impact on patients' quality of life in comparison to other dermatological diseases [1].

Objectives, Methods and Results: 3D-perfusion analysis of inflammatory skin diseases such as HS using hyperspectral imaging (HSI) is a current modality that should be added in the diagnostic and management of the disease [2]. Non-invasive bedside imaging tools such as ultrasonography are becoming more prevalent for assessing cutaneous lesions including inflammatory skin diseases. In a recent study, medical infrared thermography (MIT) was seen as a promising tool for the detection of inflammation severity in HS lesions and showed promising results and could be used as a clinical biomarker in evaluation studies of medical and surgical HS treatment, on the other hand HSI is a reliable device with easy real time determination and visualization of hemodynamically relevant parameters- superficial and deeper oxygen saturation, total hemoglobin and tissue water content [1, 2]. HSI allows a clear classification of the stages of burns by analyzing inflammatory hyperemia and edema in burn patients and the perfusion rate [2]. Furthermore, it was also applied on other skin diseases which show an underlying increased inflammatory hyperemia, which were detected by hemoglobin content in the affected tissue, this was useful as an endogenous optical biomarker of increased risk for underlying inflammation within an area highly predicted to develop an ulcer or any inflammatory skin disease (infected soft tissue wounds, burn injuries, abscesses as well as chronic ulcer wounds) which also can include HS [3, 4]. Increased hyperemia is often observed early before the underlying lesion are formed. In addition, inflammatory angiogenesis associated with HS can also be observed with the use of HSI and can be noted early on and predict progression of the disease. Therefore, HSI shows a great potential in assessing and monitoring flares of HS, helping in routine decision-making regarding treatment, excision, and follow up measures [4, 5].

Conclusion: In this respect, cost-effective risk assessment and prevention of progression of HS is of major importance in the clinical management. One possible strategy to achieve this objective is to make a cost-effective imaging device which could also be implemented in telemedicine available for personal (primary care clinicians/dermatologists/plastic surgeons) monitoring HS to detect early changes for delivering effective treatments in a timely manner [5].

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11 | Ultrasound-guided photodynamic therapy with intralesional methylene blue and a 635 nm light-emitting diode lamp in hidradenitis suppurativa: a retrospective study of 41 patients

Marta Gamissans Cañada[1]; Nuria Riera Martí[1]; Jorge Romaní De Gabriel[1]; Yolanda Gilaberte[2]

[1]Dermatology, Consorci Sanitari Parc Taulí de Sabadell, Universitat autonoma, Sabadell, Spain; [2]Dermatology, Hospital Miguel Servet, Zaragoza, Spain

Background: Photodynamic therapy for hidradenitis suppurativa (HS) is a therapeutical alternative with a good safety profile, but its effectiveness has yet to be demonstrated [1-5].

Objectives: To demonstrate the effectiveness of PDT with intralesional methylene blue in hidradenitis suppurativa lesions (Figure 1).

Methods: A retrospective cross-sectional study was performed. Forty-one lesions were treated with intralesional methylene blue and a diode lamp (635 nm) at 37 J/cm^2. Follow-up was carried out at 1 and 6 months after therapy. Efficacy was determined by

the diameter reduction of the lesion in mm as measured by high-frequency ultrasound.

Results: A reduction of ≥75% in the maximum diameter was recorded in 58.8% of the lesions, while 22% showed a reduction between 50 and 75%, and 19.5% showed a reduction of <50%. Recurrence rate was 12.5%. The lesions treated in patients with typical forms of HS (Canoui-Poitrine phenotype I) had a better therapeutic response. No statistically significant differences were found in terms of lesion location or concomitant treatment.

Conclusion: This therapy has proven to be a cost-effective and well-tolerated local therapy for Hurley I-II patients with abscesses and superficial fistulas.

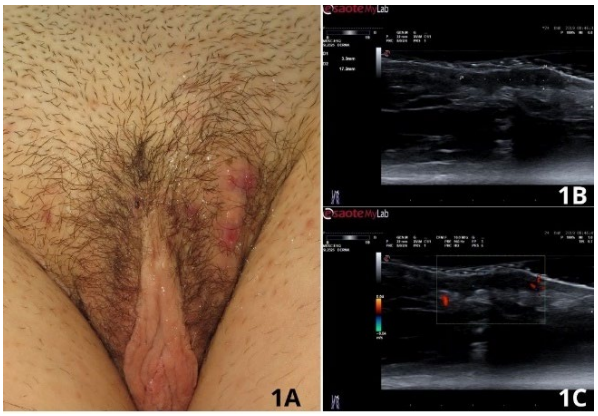

FIGURE 1 Clinical and ultrasound image of a superficial vulvar sinus tract

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P6 | Phase II, single-centre, randomised, double-blind, placebo-controlled clinical trial to determine the safety and efficacy of adult allogeneic mesenchymal stem cells from adipose tissue in the treatment of draining fistulas in patients with hidradenitis suppurativa (HidraQureS 2020)

Alejandro Molina-Leyva[1]; Trinidad Montero-Vilchez[1]; Luis Salvador-Rodriguez[1]; Carlos Cuenca-Barrales[1]; Olga Espinosa-Ibañez[1]; Alberto Carrillo-Acosta[1]; Ana Cardesa-Gil[2]; Rosario Mata-Alcazar-Caballero[2]; Salvador Arias-Santiago[1]

[1]*Clinical & Translational Dermatology, Instituto Biosanitario Granada - Hospital Virgen de las Nieves, Granada, Spain;* [2]*Red Andaluza de Diseño y Traslación de Terapias Avanzadas, Advanced Therapies, Sevilla, Spain*

Background and Objectives: The aims of this study are to assess the safety and efficacy of the intralesional injection of stromal stem cells in draining fistulas of patients with hidradenitis suppurativa.

Methods, Results and Conclusion: For this purpose a phase II parallel, double blind, placebo-controlled randomized clinical trial will be performed. The scientific background and methodology of this independent upcoming clinical trial will be presented.

Acknowledgements: This study is funded by Consejería de Salud, Junta de Andalucía, Grant/Award Number: PIGE-0247-2019

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P7 | Deroofing as a surgical option in hidradenitis suppurativa: local and distant recurrences and implicated factors

Verónica Mora-Fernández; Júlia Verdaguer Faja; Julio Bassas-Vila

Dermatology department, Hospital Universitari Germans Trias i Pujol, Badalona, Spain

Background and objectives: Hidradenitis suppurativa (HS) is an inflammatory disease in which fistulas are formed. The "deroofing" is a surgical technique that allows treating these fistulas by opening them with a second intention healing [1, 2]. The aim of this study is to evaluate the efficacy of "deroofing" as a localized surgical option, assessing local and distant recurrences over time, considering different factors.

Methods: A prospective, descriptive cohort study was performed, collecting HS patients who underwent one or more deroofings.

Results: Main data collected is found in Table 1. Regarding recurrences at 6 months, 6 (22.22%) were observed for local and 11 (40.74%) for distant recurrences. A bivariate analysis was performed. Results show statistical significance in the relationship between BMI and local recurrence (p 0.01783), being overweight a protective factor. In distant recurrences, statistical significance was observed in the relationship between sex and distant recurrence at 6 months (p

0.04167), being male a protective factor. No statistical significance was found for the other factors.

Conclusion: The "deroofing" is a good technique for the treatment of fistulas in HS. Recurrences are low, similar to the rates described in literature. We found statistical significance between local recurrences and BMI, being overweight a protective factor. This could be explained by the relationship of BMI with certain HS phenotypes [3, 4]. After this preliminary study we consider to carry out a multicenter study to confirm and study these findings, considering the limitations of the current one due to the probable biases secondary to the small sample size.

TABLE 1 Description of the main epidemiological data and recurrences collected from all patients who underwent deroofing surgery

Characteristic		N (%) [rank]
Sex (n=27)	Male Female	10 (37%) 17 (63%)
Average age (years)		37.8 ([15.2-62.1])
Disease duration (years)		12.3 [2.1-51.7]
BMI (Kg/m2)		29.87 [16.45-43.87]
Refined Hurley classification	III IIC	[11/35] 31% [9/35] 26%
Currently smoking	Yes No	28 (84.85%) 5 (15%)
Adalimumab treatment (n)		7 (20%)
Surgical site location (n= 35)	Axilar Inguinal Gluteus Submammary Abdominal Anogenital	17 (48.57%) 8 (22.86%) 4 (11.43%) 2 (5.71%) 2 (5.71%) 2 (5.71%)
Recurrences at 6 months (n= 27)	Local	6/27 (22.22%) 2 on operated field (OF) (7.41%) 2 <1cm from OF (7.41%) 2 >1cm from OF (7.41%)
	Distant	11/27 (40.74%)

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P10 | Patients' response stratified by high-, medium-, and low-abscess and nodule counts to an adalimumab treatment for moderate to severe hidradenitis suppurativa: Post-hoc, real-world data from the SOLACE study

Wayne P. Gulliver[1,2]; Afsaneh Alavi[3,4]; Marni C. Wiseman[4,5]; Melinda J. Gooderham[4,6]; Jaggi Rao[7]; Maryam S. Alam[4,8]; Kim A. Papp[4,9]; Oliver Desjardins[10]; Christine Jean[11]

[1]NewLab Clinical Research Inc., St. John's, Canada; [2]Memorial University of Newfoundland, St. John's, Canada; [3]Mayo Clinic, Rochester, USA; [4]Probity Medical Research Inc., Waterloo, Canada; [5]Wiseman Dermatology Research, Winnipeg, Canada; [6]SKiN Centre for Dermatology, Peterborough, Canada; [7]University of Alberta, Edmonton, Canada; [8]SimcoMed Health Ltd., Barrie, Canada; [9]Kim Papp Clinical Research, Waterloo, Canada; [10]AbbVie Corporation, Saint-Laurent, Canada; [11]AbbVie Corporation former employee, Saint-Laurent, Canada

Introduction: Real-world data are lacking to guide management of patients with hidradenitis suppurativa (HS).

Objectives and Methods: In SOLACE – an observational, prospective Canadian post-marketing study – adults with moderate to severe HS in need for change in ongoing therapy were treated with adalimumab for up to 52 weeks. Treatment effectiveness was measured by HS Clinical Response (HiSCR). The disease severity was evaluated using Inflammatory nodules, abscesses, and draining fistulas count, Hurley stage, and the International HS Severity Scoring System (IHS4). The HiSCR responses were documented by abscess and inflammatory nodule (AN) (low, medium, high) counts (Table 1). Spontaneously-reported safety events were collected.

Results: The mean population age and age at HS onset were 37.8 ± 12.2 (mean ± SD) years and 22.8 ± 11.07 years, respectively. The majority was white (82.6%) and predominantly female (75.4%). At baseline, most patients were moderate based on Hurley stage II (68.8%) and severe (70.3%) based on IHS4. Treatment effectiveness was greater in HiSCR responders with medium- and high-AN counts than in those with low counts (Table 1). No new safety signal was detected.

Conclusion: Adalimumab effectiveness was observed over a 52-week period, with most gains assessed in HiSCR responder patients with medium- and high- AN counts.

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TABLE 1 Post-hoc analysis of the SOLACE study data: Treatment effectiveness and disease severity stratified by low, medium, and high AN counts at week 24 and week 52 (Intent-to-treat population, N = 138)

	Baseline	Week 24	Week 52
Proportion achieving HiSCR, %[a]			
AN count			
Low (n = 52)	NA	63.6%	60.0%
Medium (n = 21)		70.6%	82.4%
High (n = 65)		72.4%	75.0%
24-week responders lesion count, mean (SD)[b]			
Abscess			
Lower body			
Low (n = 28)	0.4 (0.82)	0.0 (0.00)	0.0 (0.21)
Medium (n = 12)	1.1 (1.36)	0.2 (0.44)	0.0 (0.00)
High (n = 42)	3.3 (4.27)	0.3 (0.87)	0.3 (0.50)
Upper body			
Low (n = 28)	0.5 (1.34)	0.0 (0.00)	0.0 (0.00)
Medium (n = 12)	1.3 (1.41)	0.0 (0.00)	0.0 (0.00)
High (n = 42)	2.9 (3.86)	0.3 (0.71)	0.5 (1.17)
Inflammatory nodule			
Lower body			
Low (n = 28)	1.2 (1.36)	0.3 (0.57)	1.0 (1.74)
Medium (n = 12)	4.1 (2.32)	0.4 (1.01)	0.7 (1.00)
High (n = 42)	10.8 (6.04	2.0 (2.25)	1.7 (2.32)
Upper body			
Low (n = 28)	1.0 (1.29)	0.2 (0.39)	0.2 (0.40)
Medium (n = 12)	2.8 (1.79)	0.1 (0.35)	0.2 (0.44)
High (n = 42)	8.8 (11.89)	1.7 (2.78)	2.2 (3.71)
Draining fistula			
Lower body			
Low (n = 28)	0.6 (0.95)	0.1 (0.29)	0.2 (0.49)
Medium (n = 12)	0.4 (0.73)	0.1 (0.33)	0.1 (0.33)
High (n = 42)	2.6 (4.84)	0.5 (1.20)	0.3 (0.71)
Upper body			
Low (n = 28)	0.9 (1.49)	0.2 (0.49)	0.2 (0.51)
Medium (n = 12)	1.0 (1.80)	0.1 (0.35)	0.0 (0.00)
High (n = 42)	3.1 (5.76)	0.4 (0.92)	0.6 (1.44)
24-week responders IHS4 score, mean (SD)			
Low (n = 28)	8.9 (6.16)	1.4 (2.42)	2.4 (2.95)
Medium (n = 12)	13.7 (6.87)	1.6 (2.35)	1.1 (1.31)
High (n = 42)	54.1 (47.48)	7.9 (9.31)	8.8 (9.65)

AN count: ≤5: low; 6-10: medium; ≥11: high.
[a]HiSCR responder if there was at least a 50% reduction in the AN count with no increase in counts of abscess and draining fistula relative to baseline; Severity based on IHS4 points: ≤3: mild; 4-10: moderate; ≥11: severe; [b]Lower body area includes abdomen, groin, things, pubic, genital, perineal, perianal, and buttock. Upper body area includes mammary and axilla; [c]Mean IHS4 score = (number of nodules*1) + (number of abscesses*2) + (number of draining fistulas*4).
AN, abscesses and inflammatory nodule; HS, Hidradenitis Suppurativa: HISCR, HS Clinical Response; IHS4, International HS Severity Score System; ITT, intent to treat; SD, standard deviation.

P15 | Adalimumab dose intensification in refractory and flaring hidradenitis suppurativa

Gregg Murray; Julie Mac Mahon; Anne Marie Tobin
Tallaght University Hospital, Department of dermatology, Dublin, Ireland

Background: The pathophysiology of hidradenitis suppurativa is complex and multifactorial; however, immunologic abnormalities remain the primary hypothesis as a causal role. Elevations in levels of pro-inflammatory cytokines, such as tumour necrosis factor-a (TNF-a) have been detected and described in HS lesional skin. This has led to the use of TNF-a antagonists in the treatment of HS. Adalimumab is the only approved biologic for the treatment of HS who have not responded to prior systemic management, however it is well documented and observed in clinical practice that primary responders of adalimumab can experience a loss in efficacy.

Objectives and Methods: A single-centre retrospective review was performed to analyse the effectiveness of adalimumab dose intensification from 40 mg to 80 mg weekly in refractory or flaring HS.A total of 8 patients were included in our case series.

Results: The 8 patients evaluated in this study were all female with Hurley stage III HS. All patients had failed first line treatment. Clinical improvement was seen in 7 out of the 8 patients. All of the responders (n = 7) noted a subjective improvement in pain and QoL. The median pre-dose intensification DLQI was 14 (range 9 - 18) and the median post-dose intensification DLQI was 3 (range 0-6).

Conclusion: Based on our experience and in keeping with one similar study published by Zouboulis et al, adalimumab dose intensification of 80 mg/weekly demonstrates an enhanced level of effectiveness, improvement in QoL and can gain control of severe flaring HS in primary responders.

P16 | The Importance of Therapeutic Drug Monitoring in Hidradenitis Suppurativa

Cristina Ciudad Blanco[1]; Angel Rosell Díaz[1]; Lula María Nieto Benito[1]; Ricardo Suárez Fernández[1]
[1]Hospital Gregorio Marañón, Dermatology, Madrid, Spain; [2]Hospital Gregorio Marañón, Dermatology, Madrid, Spain; [3]Hospital Gregorio Marañón, Dermatology, Madrid, Spain; [4]Hospital Gregorio Marañón, Dermatology, Madrid, Spain

Background and Objectives: Adalimumab is currently the only approved treatment for moderate to severe hidradenitis suppurativa (HS). But some patients does not respond adequately to the treatment [1]. Therapeutic drug monitoring (TDM) in patients with suboptimal responses to adalimumab could improve the therapeutic strategy [2].

Methods: 2 patients IHS4 moderate stage did not achieved Hi-SCR at week 12 and were considered suboptimal responders. Adalimumab serum levels and anti-adalimumab antibodies (AAA) were measured. Serum adalimumab concentration was <6 µg/mL and AAA were undetectable in both patients. Adalimumab dose intensification (80 mg/week s.c) was administered with significant clinical response, improved in IHS4 score, pain index, DLQI and HS-PGA. No adverse events were reported after 4 months of dose intensification.

Results: Serum adalimumab concentration was subcategorized into three groups: < 6, 6–20, and >20 µg/mL (subtherapeutic, therapeutic, and supratherapeutic). Cutoff values of adalimumab levels were guided by the inflammatory bowel disease literature, as no values exist for HS. In primary and secondary suboptimal responders, adalimumab serum levels and AAA status could use to guide therapy. Published case series suggests that lack of response in patients with HS to adalimumab therapy may be overcome through dose escalation.

Conclusion: The literature demonstrates that the patients who may benefit from dose escalation are those who have subtherapeutic adalimumab concentrations and are AAA– [3]. Further studies are required to determine whether TDM can be used to guide treatment decisions in HS.

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P18 | Is acne conglobata the opposite spectrum of hidradenitis suppurativa-especially when it responds well to adalimumab?

Eleftheria G. Tampouratzi; John C. Katsantonis
Department of Dermatology and Venereology, Tzaneio General Hospital, Pireas, Greece

Background: Acne conglobata (AC) is a rare form of acne, that is usually seen in the second and third decade of life [1]. The disease presents with comedones and deep burrowing abscesses that interconnect with each other via sinus tracts, and also scar formation and disfigurement of the body. The histopathology reveals similarities between AC and hidradenitis suppurativa (HS) with large tender nodules and draining sinus tracts [2].
Objectives: We present a young patient suffering from AC refractory to any topical and systemic treatment, eventually responded to adalimumab (ADA), raising the question whether AC would be considered as a distinct entity in the HS spectrum [3, 4].
Methods and Results: An 18 years old Caucasian male presented with extended comedones, along with nodulocystic lesions and deep abscesses on his back over the last 2 years. Patient, had previously been treated with isotretinoin for one year combined with a short course of prednisone with negligible improvement. When he started treatment with adalimumab, following the standard established dose for HS, remarkable improvement was noted at just 8 weeks and adequate control after 6 months therapy. Patient continues treatment 1.5 year after with excellent clinical and psychological response.
Conclusion: Treating AC is challenging. Except histopathology evidence, AC and HS have many common clinical, pathogenetic, ultrasound and treating findings, allowing us to suggest that AC maybe one more entity in the HS spectrum. Future research with more data will be able to integrate AC into the frame of HS using ADA as first line treatment option [5].
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P32 | Split-thickness skin graft (STSG) technique in surgical treatment of axillary hidradenitis suppurativa

Karolina Wójcicka; Piotr K. Krajewski; Jacek C. Szepietowski
Department of Dermatology, Venereology and Allergology, Wroclaw Medical University, Wroclaw, Poland

Background: Hidradenitis Suppurativa (HS) is a chronic, recurrent inflammatory disease of the pilosebaceous unit. Frequently surgery is considered the only effective option for the more advanced cases and it consists of complete excision of the affected tissues and subsequent reconstruction. Wide resection of affected tissue with simultaneous reconstruction with split-thickness skin graft (STSG) is commonly recommended, because of good esthetic and functional results.
Objectives: The aim of this study was to present our results of surgical treatment of axillary HS in advanced stages with wide excision of affected tissue and subsequent immediate wound closure with STSG.
Methods: We have analyzed documentation of 22 patients with severe HS and armpit affectation, who had undergone excision with subsequent STSG.
Results: After one year follow up, all of our patients reported satisfactory appearance of the operated site, no pain and normal shoulder joint mobility. Among 7 patients who had scar contractures before the surgery, the operation restore physiological joint range. Regarding the complications only in one patient a massive bleeding from the operating site appeared in the seventh post-surgery day, which was managed immediately. No other complications, including skin graft rejection, superficial or deep infection and wound dehiscence were observed.
Conclusion: Wide excision of affected tissue in advanced stages of armpits' HS with simultaneous coverage of the wound with STSG is a cheap, easy and effective method. Moreover, it has very good esthetic and functional results, and, in comparison with other reconstructive techniques, the recurrence rate is considerably lower.

P35 | A curious case of optic neuritis in hidradenitis suppurativa patient, successfully treated with adalimumab

Alessandra Mambrin; Nevena Skroza; Ersilia Tolino; Nicoletta Bernardini; Ilaria Proietti; Veronica Balduzzi; Anna Marchesiello; Patrizia Maddalena; Salvatore Volpe; Concetta Potenza
Dermatology Unit, Dept. of Medical Surgical Sciences and Biotechnologies, Sapienza University of Rome, Polo Pontino, Latina, Italy

Background: Hidradenitis suppurativa (HS), also known as acne inversa, is a chronic inflammatory skin disease characterized by painful, deep-seated inflammatory nodules and abscesses appearing in intertriginous regions of the body.
Objectives, Methods, Results and Conclusion: HS is associated with other systemic inflammatory or autoimmune diseases, such as Crohn's disease, spondyloarthropathy, and Adamantiades-Behcet's disease. Recent case reports have documented the coexistence of HS and inflammatory eye disease (IED), probably due to a common immune dysregulation phenomenon. We present a case of optic neuritis in HS patient, successfully treated with Adalimumab.

P41 | Characterizing the treatment of hidradenitis suppurativa disease - a single center experience

Ziad Khamaysi[1,2]; Annan Hammoud[2]
[1]Rambam Health care Campus, Dermatology, Haifa, Israel; [2]Technion – Israel institute of technology, Haifa, Israel

Background: Hidradenitis Suppurativa (HS) is an inflammatory disease.The treatment of HS is a challenge for a clinician and includes mainly anti-inflammatory and antibiotics drugs.
Objectives: The purpose of this study is to review, characterize and evaluate the different clinical characteristics of HS patients and review the different treatment options including anti-TNF-alfa.
Methods: This is a retrospective study in which we collected clinical, laboratory and demographic data from patients' files our dermatology out clinic between the years 2015-2018. We compared our data to the general population in Israel.
Results: We collected 164 HS patients. Compared to the general population of Israel, the majority of HS patients were male (58.5%) while a majority of general population were females (62.6%), The mean age was lower than the age in general population; 33.9 years compared to 38.5 years, the percentages of smokers and overweight patients among the HS patients were higher than in the general population. Male sex, smoking and overweight in addition to axilla and buttocks lesions were found to be risk factors for severe HS disease. The response to Adalimumab treatment was effective: 8% completely recovered, 33% markedly improved, 42% partially improved and 17% had no response.
Conclusion: Adalimumab treatment found to be effective for moderate to severe HS patients in real life data. In addition, we noticed that, reducing the time until diagnosis leads to a better response. Another important point, lesions in the buttocks show less response to treatment

P43 | COVID-19 and treatment with biologics: Safety insights from the phase 3 studies of secukinumab in patients with moderate-to-severe hidradenitis suppurativa

Elisa Muscianisi[1]; Anne-Christine Potocki[2]; Deborah Keefe[1]; Nicolas Thomas[3]; Torben Kasparek[2]; Alexa B. Kimball[4]; Alice B. Gottlieb[5]; Afsaneh Alavi[6]; Ziad Reguiai[7]; Gregor B. E. Jemec[8]
[1]Novartis Pharmaceuticals Corporation, East Hanover, NJ, USA; [2]Novartis Pharma AG, Basel, Switzerland; [3]Novartis Pharma AG, Rueil-Malmaison, France; [4]Department of Dermatology, Harvard Medical School and Clinical Laboratory for Epidemiology and Applied Research in Skin (CLEARS), Beth Israel Deaconess Medical Center, Boston, MA, USA; [5]Department of Dermatology, Icahn School of Medicine at Mount Sinai, New York, NY, USA; [6]Department of Dermatology, Mayo Clinic, Rochester, MN, USA; [7]Department of Dermatology, Polyclinique Courlancy, Reims, France; [8]Zeeland University Hospital, University of Copenhagen, Health Sciences Faculty, Roskilde, Denmark

Background: The COVID-19 pandemic has disrupted clinical trial management [1] and poses a major challenge for patients treated with immunomodulatory therapies. Secukinumab, a selective inhibitor of IL-17A, has proven highly efficacious and safe across multiple indications, and is currently in development for hidradenitis suppurativa (HS) [2-4].
Objectives: Here, the impact of COVID-19 in patients enrolled in the Phase-3 HS studies is described.
Methods: SUNSHINE (NCT03713619), SUNRISE (NCT03713632) and the associated 4-year extension study (NCT04179175) were designed to evaluate efficacy, safety, and clinical response maintenance of secukinumab in HS patients. This abstract describes COVID-19 cases in these trials based on ongoing safety review of blinded data.
Results: As of 11-Jan-2021, 86.7% (938/1082) and 46% (344/745) patients were enrolled in the core and extension studies, respectively. As of 11-Jan-2021, 14 patients had confirmed COVID-19 infection; 11/14 patients tested positive and 3/14 patients were suspected positive based on symptoms (Table 1). The first case was reported on 13-Mar-2020. Generally, patients experienced mild symptoms (cough/congestion). Hospitalization rates were low (2/14; 14.3%), occurring in patients with comorbidities (asthma/obesity) and lasting 3 days. Treatment was temporarily stopped in 9/14 (64.3%) patients; no discontinuations occurred. Patients' retention in these studies remained high.
Conclusion: Only 14 COVID-19 cases were detected from almost 1000 HS patients, including those either receiving placebo or

investigational drug. Cases presented mild symptoms and resolved with no safety consequences, and patients remained in studies regardless of treatment interruption. No new safety findings were identified in patients with HS experiencing COVID-19 infection while enrolled in studies with secukinumab.

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TABLE 1 Baseline characteristics and demographics of COVID-19 patients in the SUNSHINE, SUNRISE and extension trials of HS patients

Characteristic	COVID-19 cases (Suspected and test-positive) (N=14)
Age, mean years	30
Female, n (%)	9 (64.3)
HS diagnosis, mean months	71 (12-324)
Smoker, n (%)	5 (35.7)
Continent	
Africa, n (%)	1 (7.1)
Asia, n (%)	2 (14.3)
Europe, n (%)	9 (64.3)
North America, n (%)	2 (14.3)
COVID-19 diagnosis	
Confirmed by testing, n (%)	11 (78.6)
Suspected based on symptoms, n (%)	3 (21.4)
Time between first IMP dose and diagnosis, mean days (range)	173 (2–520)
IMP stopped during COVID-19 infections	
Yes, n (%)	9 (64.3)
No, n (%)	5 (35.7)
Hospitalization required due to COVID-19 infections	
Yes, n (%)	2 (14.3)
No, n (%)	12 (85.7)
Average hospitalization time, mean days	3
Outcome of COVID-19 infections	
Recovery, n (%)	14 (100)

COVID-19, coronavirus disease 2019; HS, Hidradenitis Suppurativa; IMP, investigational medicinal product; n, number of patients; N, total number of patients

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P44 | Intralesional therapy under ultrasound guidance in hidradenitis suppurativa: The importance of ultrasound evaluation

Raffaele Dante Caposiena Caro[1]; Chiara Tartaglia[1]; Chiara Pensa[1]; Piero Rossi[2]; Luca Bianchi[1]

[1]*Dermatology Unit, Department of Systems Medicine, University of Rome Tor Vergata, Rome, Italy*; [2]*Department of Surgery, University of Rome Tor Vergata, Rome, Italy*

Background: We reported eight patients with moderate severe HS treated with intralesional triamcinolone plus lincomycin, under ultrasound imaging guidance, after local anesthesia with lidocaine [1].

Objectives and Methods: Patients were treated at T0 and after 4 weeks (T4). Patients returned after 4 weeks (T8), and the target lesions were evaluated clinically using the physician global assessment of HS and ultrasound power Doppler.

Results: In all cases, the target lesions were fistulas localized in axillae or groin area. Six patients were females and two were males, with a mean age of 37.3 years and a mean body mass index of 27.5; five were current smokers and four reported comorbidities. In addition, five patients had a family history of HS. Six patients had a disease relapse after stopping their treatment, while two had a flare during therapy with adalimumab.Three patients had a complete remission at T8. We observed that wide lesions with a high fibrotic scarring did not reach the clinical response as opposed to small and low fibrotic scarring fistulous tracts.

Conclusion: Overall, we achieved a statistically significant reduction of all variables analyzed (with Wilcoxon signed rank test) at T8, including pain, erythema, discharge and size. Finally, no side effects were observed. In our experience, this treatment was useful to manage flares during long-term therapies (ie, adalimumab) or recurrence of a lesion after the end of a treatment (i.e. antibiotics). Although we believe that both lesion size and level of fibrotic scarring should be carefully evaluated at baseline.

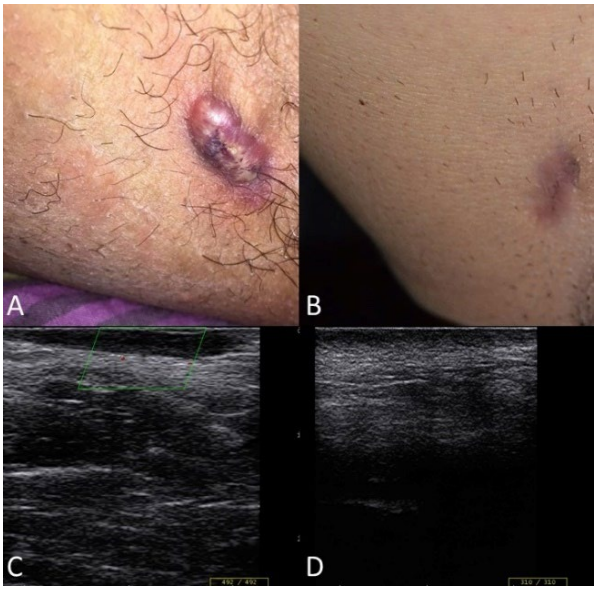

FIGURE 1 Patient 1. A, Baseline; B, T8; C, ultrasound at baseline; D, ultrasound at T8

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P45 | Clinical and Power-Doppler ultrasound features related with persistence of fistulous tracts under treatment with adalimumab in hidradenitis suppurativa: four years of follow-up

Raffaele Dante Caposiena Caro[1]; Francesco Maria Solivetti[2]; Eleonora Candi[1]; Chiara Tartaglia[1]; Chiara Pensa[1]; Piero Rossi[4]; Luca Bianchi[1]

[1]*Dermatology Unit, Department of Systems Medicine,University of Rome Tor Vergata, Rome, Italy;* [2]*Radiology and Diagnostic Imaging Unit, Department of Clinic and Dermatological Research, San Gallicano Dermatological Institute IRCCS, Rome, Italy;* [3]*Department of Experimental Medicine, University of Rome Tor Vergata, Rome, Italy;* [4]*Department of Surgery, University of Rome Tor Vergata, Rome, Italy*

Background: Fistulous tracts are the hallmark lesions of hidradenitis suppurativa (HS) and respond poorly to the currently available medical treatments.

Objectives: To evaluate the clinical and ultrasound features related with both healing and persistence of fistulous tracts in patients under treatment with adalimumab.

Methods: We performed a retrospective analysis of power-Doppler ultrasound (PD-US) images with fistulas in HS patients [1, 2]. The clinical and sonographic staging of HS, body areas involved, and anatomic characteristics of the fistulous tracts were registered and graded. Chi-square test, univariate/multivariate Cox-regression analysis with clustered error, and Kaplan-Meier analysis were computed to analyze data.

Results: In total, 151 fistulous tracts from 33 HS patients were included. Age, BMI, length, thickness, subcutaneous pattern, high intensity of PD-US signal and a high grade of fibrosis/edema were all related to a lower possibility of healing and a high risk of longer persistence at binomial Cox-regressions. Whereas, multivariate regressions showed that high fibrosis, was the variable with the highest risk of poor response and longer survival [3]. Survival-analysis showed that fistulas with high fibrosis or PD-US signal have longer survival time than those with absent/low fibrosis or signal. A limitation of the methods is that ultrasound cannot detect lesions <0.1 mm, small sample size.

Conclusion: An accurate assessment of fibrosis may be crucial to defining better when a surgical approach - besides the medical treatment – could be required. PD-US may assess the decrease of vascularization in HS lesions and consequently the reduction of inflammation due to immunomodulatory therapies [4, 5].

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P55 | Effectiveness and safety of secukinumab in patients with hidradenitis suppurativa: Our clinical experience

Francisco Javier Melgosa Ramos; Ramón García-Ruiz; Eva M. Sánchez-Martínez; Héctor Gegúndez-Hernández; Tania Díaz Corpas; Pilar Pérez García; Francisco José Ferrando Roca; Ana Isabel Zayas Gavilá; Almudena Mateu-Puchades

Department of Dermatology, Hospital Universitario Doctor Peset, Valencia, Spain

Background: Adalimumab is the only approved biological therapy for hidradenitis suppurativa (HS) [1-3]. Several case reports and case series have been published showing another therapies, but some extra evidence would be useful in clinical diary practice [2-5].

Objectives: To evaluate effectiveness and safety of secukinumab in patients with HS.

Methods: *Design*: prospective descriptive study. *Period*: 01/01/2018 – 12/01/2021. *Scope*: tertiary general university hospital. *Inclusion criteria*: adult patients with HS treated with secukinumab by subcutaneous induction and maintenance. *Study variables*: demographic (various), comorbidities, Hurley stage, depression or anxiety, digestive adverse effects, previous and concomitant therapies. Effectiveness was described using HiSCR, and patient VAS and IHS4 (when available), while safety was described as incidence and severity of side effects observed, or communicated by patients.

Results: We included 12 patients (40% male, 60% female) with a median of 38 years and 76, 3 kg. The main comorbidity found was smoking (75%), and 58.3% had diabetes, hypertension or dyslipemia. One patient had HIV and another had hepatitis B. Depression or anxiety were common (58.3%). Hurley stage was III in all patients (100%). Before the treatment with secukinumab our patients received: adalimumab (100%), antibiotics (100%), surgery (66, 7%), retinoids (92%) and ustekinumab (25%). After 12 weeks most of them achieved HiSCR and/or improved VAS or IHS4, without developing bowel disease, intestinal symptoms or suffering any serious adverse event.

Conclusion: In our experience, despite the severity of the disease, secukinumab seems to be an effective and safe alternative in patients with HS resistant to other therapies.

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P56 | Switching from adalimumab originator to biosimilar: clinical experience in hidradenitis suppurativa patients

Trinidad Montero-Vilchez; Andrea Rodriguez-Tejero; Manuel Sanchez-Diaz; Salvador Arias-Santiago; Alejandro Molina-Leyva

Dermatology, Hospital Universitario Virgen de las Nieves, Granada, Spain

Background: Adalimumab is currently the only biological approved for the treatment of hidradenitis suppurativa (HS). The breakout of biosimilar drugs made biological drugs more accessible due to their impact in pharmacoeconomic [1-5]. Nevertheless, the formulation, packaging or excipients are unique features of each drug. For this reason, switching from Adalimumab originator to biosimilar and between biosimilars could have clinical implications.

Objectives: To describe our clinical experience in switching originator to biosimilar Adalimumab.

Methods: A unicentric retrospective cohort study was conducted including HS patients treated with Adalimumab originator in maintenance phase and achieving HiSCR response, who were switched to Adalimumab biosimilar.

Results: Seventeen patients were included in the study. Mean duration with Adalimumab originator treatment before switching was 55.05 weeks. After switching, 41.18% patients maintained HiSCR response without additional issues, while 58.82% (10/17) communicated problems with the new drug: 23.53% (4/17) reported severe pain at the injection site, 23.53% presented loss of HiSCR response, 5.88%(1/17) presented pain and loss of response simultaneously, and 5.88% presented dizziness. Of the 10 patients with problems after the change, 80% (8/10) returned to their original treatment and were reassessed at 12 weeks, 2 patients discontinued treatment. Of the eight patients that switched back, the pain disappeared in 100% of the cases (4/4) and 66.66% (2/3) recovered the HiSCR response.

Conclusion: Switching from Adalimumab originator to biosimilar in well controlled patients could imply problems in adherence and clinical response. It would be advisable to evaluate the benefit-risk individually when changing a HS patient to Adalimumab biosimilar.

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P58 | Antibiotic use in hidradenitis suppurativa: a practice survey

Anne-Claire Fougerousse[1,3]; Ziad Reguiai[2,3]; Gem ResoVerneuil[3]

[1]*Hopital d'Instruction des Armées Begin, Saint Mandé, France;* [2]*Polyclinique Courlancy, Reims, France;* [3]*Gem ResoVerneuil, France*

Background: Antibiotics are used for hidradenitis suppurativa management with limited evidence. Choice of antibiotics is based on small randomized controlled trials or open case-series.

Objectives and Methods: We performed a practice survey in French physicians treating HS to identify the antibiotic strategy. Online questionnaire was sent to all members of ResoVerneuil in January 2021. Several answers were possible for each Hurley stage.

Results: 79 physicians answered the survey (75% women), 70.8% were hospital based, and 29.2% had a private practice. 16.5% had a dedicated consultation for HS. 58.2% see <5 HS patients per months, 30.4% 5-15 and 11.4% > 15. Antibiotics prescription according to Hurley stage is presented in Table 1. Antibiotics are used by all physicians to treat HS flares. 29% of physicians use background antibiotics for HS Hurley I <4 flares/year and 72 to 84% for the more severe stages of HS. Doxycyclin is the most used antibiotic for background treatment, mainly for Hurley 1 and 2 stages, followed by sulfamethoxazole-trimetoprim. Different antibiotics combinations (clindamicyn with rifampicin or quinolones) are used for HS Hurley II and III. European HS guidelines propose tetracyclin or clindamicyn-rifampicin. French recommandations propose amoxicilin/clavulanic acid or pristinamicin for HS flares, background antibiotics treatment with cyclins or sulfamethoxazole-trimethoprim for HS Hurley I ≥4 flares/year and HS Hurley 2 and 3. For HS Hurley 3 initial antibiotic treatment with ceftriaxone-metronidazole or levofloxacine-clindamicyn is proposed.

Conclusion: This survey underlines the heterogeneity in antibiotic prescription for HS Hurley II and III.

Acknowledgements: The authors acknowledge all members of Resoverneuil for answering the survey

TABLE 1 Antibiotics prescription according to Hurley stage (several answers were possible for the questions)

	Hurley 1, <4 flares per year		Hurley 1, ≥4 flares per year		Hurley 2		Hurley 3	
	N	%	N	%	N	%	N	%
Antibiotics for flare	n=	70	n=	73	n=	70	n=	66
Amoxicilline- Clavulanic acid	0	0,00%	0	0,00%	0	0,00%	0	0,00%
Pristinamycin	0	0,00%	0	0,00%	0	0,00%	0	0,00%
Doxycycline	1	1,43%	4	5,48%	0	0,00%	0	0,00%
Azythromycin	0	0,00%	0	0,00%	0	0,00%	0	0,00%
Clindamycin-rifampicin	0	0,00%	0	0,00%	0	0,00%	0	0,00%
Ceftriaxone	0	0,00%	0	0,00%	1	1,43%	0	0,00%
Antibiotics as background treatment	n=	23	n=	57	n=	67	n=	64
Doxycyline	23	100,00%	55	96,49%	55	82,09%	41	64,06%
Limcycline	0	0,00%	0	0,00%	0	0,00%	0	0,00%
Sulfamethoxazole-Trimetoprim	0	0,00%	0	0,00%	0	0,00%	0	0,00%
Clindamycin-rifampicin	0	0,00%	0	0,00%	0	0,00%	0	0,00%
Clindamycin- Ofloxacin	0	0,00%	0	0,00%	0	0,00%	0	0,00%
Clindamycin - Levofloxacin	0	0,00%	0	0,00%	0	0,00%	0	0,00%
Ceftriaxone- Metronidazole	0	0,00%	2	3,51%	7	10,45%	13	20,31%
Rifampicine- moxifloxacin- Metronidazol	0	0,00%	0	0,00%	0	0,00%	0	0,00%
Ertapenem	0	0,00%	0	0,00%	0	0,00%	3	4,69%
Azithromycin	0	0,00%	0	0,00%	0	0,00%	0	0,00%
Topical clindamycin	0	0,00%	0	0,00%	0	0,00%	0	0,00%
Pristanamycine - Metronidazole	0	0,00%	0	0,00%	2	2,99%	2	3,13%

P60 | Comprehensive study of hidradenitis suppurativa in the perspective of pathogenesis and clinical and histological therapeutic efficacy of fractional microneedling radiofrequency

Dong Hyo Kim[1]; Ji Hoon Yang[1,2]; Soo Ick Cho[1]; Ji Young Yoon[1,2]; Jungyoon Moon[3]; Ji Won Kim[1]; Sungjun Choi[1]; Dae Hun Suh[1,2]
[1]Seoul National University College of Medicine, Dermatology, Seoul, South Korea; [2]Seoul National University Hospital, Acne, Rosacea, Seborrheic Dermatitis and Hidradenitis Suppurativa Research Laboratory, Seoul, South Korea; [3]Reone Skin Clinic, Seoul, South Korea

Background: Hidradenitis suppurativa (HS) is a devastating chronic inflammatory skin disease with frequent recurrence. Various systemic treatments and procedures have been applied to HS, yet the efficacy of fractional microneedling radiofrequency (FMR) has not been reported.

Objectives: To evaluate the clinical and histological efficacy of FMR in the treatment of HS lesions.

Methods: An 8-week, prospective, split-body, non-blind study was conducted. Ten adult patients with mild to moderate HS received 3 sessions of FMR treatment biweekly. The severity of HS was assessed using the number and types of lesions, HS Physician Global Assessment (HS-PGA), and the modified Sartorius score (mSS). Skin biopsies were performed on participants to assess change in inflammation before and after FMR.

Results: Severity of HS was significantly reduced in the FMR-treated sides, but not in the control sides. Inflammatory HS lesions were significantly reduced after 4 weeks, while HS-PGA and mSS were significantly decreased after 6 weeks. Immunohistochemistry staining showed decreased expression of inflammatory markers including neutrophil elastases, IL-8, IL-17, TNF-α, TGF-β1, and MMPs.

Conclusion: FMR can be a viable treatment option for mild to moderate HS.

P61 | Acne-like hidradenitis suppurativa or acne associated with hidradenitis ? That is the question ! Therapeutic connections

Vincenzo Bettoli; Giulia Odorici
Medical Science/O.U. Dermatology, Azienda Ospedaliera - University of Ferrara, Ferrara, Italy

Background: Hidradenitis Suppurativa (HS) is an inflammatory recurrent dermatosis characterized by nodules, abscesses, fistulas and scars. Similar cutaneous lesions may also be observed in severe cases of Acne [1, 2]. HS and Acne, share pathogenetic aspects, like the obstruction of the hair/pilosebaceous follicle, inflammation, etc. "Acne Associated with HS" from "Acne-like Lesions in the context of HS" is relevant in the view of exact clinical diagnosis on one side and therapeutic implications on the other side. HS usually does not respond to isotretinoin and there are no data enough to establish how Acne responds to biologics. The typical localizations of Acne

ad HS are different, sebaceous areas for Acne and big body folds for HS, but HS lesions may potentially spread everywhere on the body.

Objectives and Methods: With the aim of discriminating between "Acne associated with HS" and "Acne-like lesions in the context of HS" 50 patients affected with HS presenting lesions attributable to Acne, localized in sebaceous areas have been considered. Fifteen patients received adalimumab and the majority of the remaining 35 received isotretinoin. Data on cutaneous lesions (comedos, papules/pustules, nodules, abscesses, fistulas, scars), their localizations and age of onset, response to treatment, etc. have been collected.

Results: According to this data and based on specific parameters Acne and Acne-like HS have been differentiated. Acne-like HS is more frequent in severe cases, less frequent in young age and tends to respond to adalimumab and not to isotretinoin.

Conclusion: An accurate differentiation between Acne and Acne-like HS is of practical therapeutic relevance.

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P64 | Current changes in the standard of care of hidradenitis suppurativa patients in a German specialist clinic due to the COVID-19 pandemic

Maximilian Kovács; Maurizio Podda

Dermatology, Klinkum Darmstadt, Darmstadt, Germany

Background: The COVID-19 pandemic has been challenging the world for more than one year.

Objectives, Methods, Results and Conclusion: In this work we show how this affects the treatment of HS patients in a regional specialist clinic in German, comparing the patients treated with HS before the pandemic in 2019 and during in 2020.

P66 | Adalimumab dose intensification in hidradenitis suppurativa: our real-life experience

Eva M. Sánchez-Martínez; Ramón García-Ruiz; Francisco Javier Melgosa-Ramos; Héctor Gegúndez-Hernández; Alvaro Aguado-Vázquez; Almudena Mateu-Puchades

Department of Dermatology, Hospital Universitario Doctor Peset, Valencia, Spain

Background: Adalimumab is the only approved biological therapy for hidradenitis suppurativa (HS) [1, 2]. Several studies support the effectiveness and safety at doses of 80 mg every 2 weeks. However, lower dose ranges are used routinely in clinical daily practice and scientific literature about it is lacking.

Objectives: To evaluate effectiveness and safety of adalimumab, using dose intensification, in patients with HS.

Methods: *Design*: prospective descriptive study. *Period*: 01/01/2015 – 31/12/2020. *Scope*: tertiary general university hospital. *Inclusion criteria*: adult patients with HS treated with adalimumab, which required dose intensification between 7 and 12 days. *Study variables*: demographic, Hurley stage, previous and concomitant therapies. Effectiveness was described using ISH4 and HiSCR and safety as incidence and severity of side effects described by CTAE classification.

Results: 13 patients were included. They had a Hurley stage of II (38.5%) and III (61.5%). Prior treatments were adalimumab at usual dosage (100%), intralesional corticosteroids (100%), antibiotics (100%) and surgery (76.9%). During the evaluation period, patients received concomitant antibiotics (30.7%) and intralesional corticosteroids (30.7%). Patients were followed up and evaluated; 61.5% and 76.9% of them improved their IHS4 score and achieved HiSCR at week 12 and week 24 respectively, without suffering any adverse event.

Conclusion: In our center, most of the patients receiving adalimumab dose intensification showed an adequate outcome, without any side effect related with the drug after 24 weeks under treatment [3, 4].

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P70 | Drug repurposing for hidradenitis suppurativa treatment

Christos C. Zouboulis[1,2]; André Nogueira da Costa[3]

[1]*Departments of Dermatology, Venereology, Allergology and Immunology, Dessau Medical Center, Brandenburg Medical School Theodor Fontane and Faculty of Health Sciences Brandenburg, Dessau, Germany, Dessau, Germany;* [2]*European Hidradenitis Suppurativa Foundation e.V., Dessau, Germany;* [3]*Early Respiratory and Immunology, Biopharmaceuticals R&D, AstraZeneca, Translational Science and Experimental Medicine, Gothenburg, Sweden*

Background: Despite the evidence-based effectiveness of several drugs, treatment of hidradenitis suppurativa (HS) is still challenging. Transcriptome/proteome studies have identified potential HS biomarkers, which may support the identification of novel therapeutic targets [1-4].

Objectives and Methods: Computational drug repurposing screening has been engaged to identify potential drugs for dermatologic conditions, including moderate-to-severe HS [5]. Lesional HS skin (LS), non-lesional HS skin and healthy skin were utilized to detect dysregulated genes with at least 2-fold change, $p < 0.01$ and a Benjamini-Hochberg false discovery rate correction<0.05 [1,2].

Results: The transcriptome analysis identified >800 dysregulated genes, which constructed the LS molecular profile used to define key HS molecular mediators. This analysis revealed a panel of 26 genes with significant robustness to be considered as key molecular mediators in HS. Among them, 15 genes are druggable: AR, EGF, FGF1, GAS6, GDNF, HGF, IFNα, IFNγ, IGF2, IL-1/IL-1α, IL-17/IL-17α, IL-4, IL-6, MCSF/CSF1, TNF/TNFα. In total, 228 therapeutic agents were associated, with the most represented ones targeting TNF/TNFα (n = 70), AR (n = 53), IFNγ (n = 26) and IL-6 (n = 19). Furthermore, combinations of GAS6, IL-17/IL-17α, TNF/TNFα, GDNF, IL-6, AR, HGF, IFNγ were targeted by Gentamycin, Ibudilast, Spironolactone, Trastuzumab, Thalidomide, Apremilast, Glucosamine, Interferon-α-2b, Binimetinib and Midostaurin.

Conclusion: Using a systems biology approach focusing on gene profiling and utilizing in silico tools, the therapeutic potential of key molecular mediators in HS was assessed, evidence of gene-drug interactions was provided and therapeutic target-therapeutic agent/compound binomials were built. Taken together, an example for identification of HS treatment candidates was provided that are available or under development for other indications.

Acknowledgements: The Departments of Dermatology, Venereology, Allergology and Immunology, Dessau Medical Center, Dessau, Germany are health care providers of the European Reference Network for Rare and Complex Skin Diseases (ERN Skin).

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P71 | Therapeutic use of Cicaderma® in the management of surgical wounds

Christelle Perat[1,4]; Olivier Raspado[2]; Sophie Al Samman Zouaghi[2]; Thierry Ghizzo[3]; Vincent Lagrange[3]; Philippe Guillem[1,4]

[1]Department of Surgery, Clinique du Val d'Ouest, Lyon, France; [2]Department of Surgery, Infirmerie Prostestante, Lyon, France; [3]Cicaplus, Lyon, France; [4]RésoVerneuil, Paris, France

Background and Objectives: Appropriate post-operative surgical wound and incision management is imperative to avoid complications. Finding therapeutic approaches that would improve and accelerate healing process is of major interest.We present evaluation of a homeopathic topic.

Methods: The ointment containing digested with Vaseline of Calendula officinalis, Hypericum perforatum and Achillea millefolium flowering tops, as well as Ledum palustre tincture, was applied on post-surgical wounds from proliferative phase to complete healing in 40 patients who underwent surgery for pilonidal sinus disease and axillary or inguinal hidradenitis suppurativa. The wound bed was monitored by nurses for erythema, pain and exudate level. Duration of re-epithelialization, quality of healing, tolerance and satisfaction were evaluated at each application.

Results: Mean re-epithelialization duration of the wound was 25 days and 40% of patients had a complete wound healing in less than 20 days. Surgeons, nurses and patients were satisfied with duration of reepithelialization and quality of healing. The topic did not induce maceration of the wound and was well tolerated as no adverse events such as infection, pain, erythema or itching was reported. Difficulties in application related to its organoleptic properties were reported.

Conclusion: All patients and medical teams were satisfied with the quality of healing. There were no adverse reactions. We conclude this homeopathic topic is useful in the treatment of post-surgical wounds during reepithelialization.

Acknowledgements: We thank Laboratoires Boiron for providing Cicaderma®

P73 | Metformin for the treatment of hidradenitis suppurativa: our experience with 27 patients

Juan Manuel Segura Palacios[1]; María Colmenero Sendra[1]; Javier del Boz González[2]; Francisco Rivas Ruiz[3]; Magdalena de Troya Martín[1]

[1]Dermatology, Hospital Costa del Sol, Marbella, Spain; [2]Dermatology, Hospital Regional Universitario, Málaga, Spain; [3]Research Unit, Hospital Costa del Sol, Marbella, Spain

Background and Objectives: The aim of our study was to evaluate the clinical efficacy and safety of metformin in treating HS cases in the period between January 2017 to December 2020.

Methods: Observational retrospective study of 27 patients with HS Hurley I-II who were treated exclusively with metformin for at least 12 weeks. Only patients who had not received antibiotic or systemic treatment in the previous 12 weeks were included. The results obtained were evaluated using HS-PGA and DLQI when the patients had completed 24 weeks of treatment.

Results: Mean age was 32.1 years; 66% female; 70.4% overweight or obese. 51.8% Hurley stage I and 48.2% stage II. The dose used ranged between 1.7 and 2.55 g per day. There was a significant reduction in DLQI, from a pre-treatment median of 13 to a post-treatment median of 9 ($p = 0.001$). However, PGA quantitative scale was reduced by a maximum of 1 point in 40.7%. Four patients abandoned the treatment, three due to gastrointestinal complaints and one by desire for pregnancy.

Discussion/Conclusion: The effects of metformin on insulin resistance and hyperandrogenism would help to improve the underlying pathogenesis of HS [1-5]. Despite the small number of patients, we have observed that the best results of treatment with metformin are those patients who associate HS with overweight or obesity. We emphasize in our study the use of higher doses. Metformin may be indicated as an adjunctive treatment for the control of HS, especially in overweight or obese patients.

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P74 | Colchicine improves clinical outcomes and quality of life in hidradenitis suppurativa patients: a prospective study

Aikaterini I. Liakou[1]; Georgios Kontochristopoulos[1]; Efthymia Agiasofitou[1]; Marios Papadakis[2]; Andreas G. Tsantes[3]; Ioannis Marnelakis[1]; Konstantina A. Tsante[3]; Anastasia Kapsiocha[1]; Alexandros Katoulis[4]; Stamatios Grigoriou[1]; Dimitris Rigopoulos[1]

[1]1st Department of Dermatology-Venereology, "Andreas Sygros" Hospital for Cutaneous and Venereal Diseases, National and Kapodistrian University of Athens, Faculty of Medicine, Athens, Greece; [2]Department of Surgery II, University of Witten Herdecke, Wuppertal, Germany; [3]Laboratory of Haematology and Blood Bank Unit, "Attikon" General University Hospital, Faculty of Medicine, National and Kapodistrian University of Athens, Athens, Greece; [4]2nd Department of Dermatology-Venereology, "Attikon" General University Hospital, Faculty of Medicine, National and Kapodistrian University of Athens, Athens, Greece

Background: Hidradenitis suppurativa (HS) is a chronic inflammatory skin disorder of the follicular epithelium.

Objectives: Aim of the current study was to investigate the effectiveness of colchicine in HS treatment [2-4] and improvement quality of life in HS patients [5].

Methods: Eligible were patients with established HS, over 18 years old [1]. The patients were treated only with colchicine (1 mg/d), with colchicine (1 mg/d) in combination with doxycycline 100 mg/d, with colchicine and doxycycline 40 mg/d, and with colchicine and adalimumab 40 mg/week. Disease severity during treatment was assessed at baseline and follow-up, using the Hurley Scoring System and the International Hidradenitis Suppurativa Severity Score System (IHS4). All patients were also asked to complete a Dermatology Life Quality Index (DLQI) questionnaire.

Results: A total of 46 patients were included in the study and further analyzed. Fifteen patients (33%) received simple colchicine treatment, 14 patients (30%) received colchicine plus vibramycin 100 mg treatment, 15 patients (33%) received colchicine plus vibramycin 40 mg treatment, while 2 patients (4%) received colchicine plus adalimumab 40 mg treatment (and were therefore excluded from further analysis). The DLQI and IHS4 scores significantly improved after treatment with colchicine ($p < 0.001$). All colchicine regimes including single colchicine regime, colchicine plus vibramycin 100 mg regime, and colchicine plus vibramycin 40 mg regime, resulted in significant improvement in the DLQI and IHS4 scores ($p \leq 0.001$).

Conclusion: Our findings suggest that colchicine may improve clinical severity and quality of life in HS patients, either as monotherapy or in combination with doxycycline, both in antimicrobial (100 mg) and sub-antimicrobial (40 mg) dose.

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P77 | Ultrasound pre-surgical mapping of hidradenitis suppurativa lesions: a pilot study

Michela Iannone[1]; Teresa Oranges[1,2]; Lorenzo Balderi[1]; Bianca Benedetta Benincasa[1]; Giulia Davini[1]; Giulia Tonini[1]; Agata Janowska[1]; Marco Romanelli[1]; Valentina Dini[1]
[1]*Dermatology, University of Pisa, Pisa, Italy;* [2]*Department of Pediatrics/Dermatology Unit, Meyer Children's University Hospital, Florence, Italy*

Background: Hidradenitis suppurativa (HS) is a difficult-to-treat disease. Surgery is an excellent therapeutic option but should be radical to be effective. Ultrasound evaluation of the involved areas and perilesional skin enables the identification of subclinical lesions and an accurate pre-surgical mapping of the size, depth and extension of the lesions.
Objectives: The aim of this study was to evaluate the HS lesions before surgery with ultra-high frequency ultrasound to precisely define size, depth and extension of the lesions in order to plan a radical surgical excision and reducing the rate of local recurrence.
Methods: Ultra-High Frequency Ultrasound (UHFUS; 48/70 MHz probes) system (Vevo® MD, Fujifilm, Visualsonics, Toronto, Canada) was performed on 15 patients. The probe was placed perpendicular to the clinical lesion continuing the scan into the perilesional skin until complete delimitation of the lesion extension, then marked with dermographic pen.
Results: A total of 18 lesions were scanned by UHFUS: 10 fistulous tracts, 5 abscesses and 2 inflammatory nodules. The body locations involved were groin, suprapubic area, sternal area, gluteal area and armpits. In all patients the lesions were present even in clinically healthy perilesional skin, the average depth of the lesions was 1 cm, all lesions were vascularized at color-Doppler evaluation. At 1 year follow-up we observed one perilesional relapses of an inguinal-scrotal fistula.
Conclusion: UHFUS represent a potential useful tool for identifying the true extent of HS lesions and its pre-surgical utilization allows to realize a radical excision reducing the rate of local recurrence.

P79 | Successful treatment of recalcitrant hidradenitis suppurativa with risankizumab after anti-TNF failure

Emanuel C. Marques; Alzbeta Smetanova; Monika Arenbergerova
Department of Dermatovenereology, Third Faculty of Medicine, Charles University and Královské Vinohrady University Hospital, Praque, Czech Republic

Background: Risankizumab is a humanised immunoglobulin G1 monoclonal antibody selective to the interleukin 23 [1]. It is currently approved for the treatment of moderate-to-severe plaque psoriasis in adults [2].
Objectives and Methods: We describe two severe Hurley III HS patients successfully treated with risankizumab. Both patients were started at the same dosage regime as in psoriasis (150 mg administered subcutaneously at week 0, week 4, and every 12 weeks thereafter) [2].
Results: Both patients attended our department monthly for check-ups. Patient 1 is currently on her 16th month of risankizumab therapy. Except for one episode of tonsillitis, she developed no adverse events (AE). Patient 2 is now on her 14th month of risankizumab monotherapy. We have so far observed no AE. HiSCR was achieved by both patients 3 months after therapy start. A significant improvement in their clinical picture, laboratory parameters and patient-reported outcome was observed at their 4th month of therapy (Figure 1). In addition, patient 1 revealed a symptomatic improvement of her MS; that was supported by a stabilization of her MS lesions evidenced by means of magnetic resonance.
Conclusion: With the occurrence of only one mild AE in 16 months of therapy, risankizumab demonstrates an outstanding safety profile. It seems that risankizumab could provide an effective and safe therapeutic alternative for patients with severe HS with MS.
Acknowledgements: The Department of Dermatovenereology, Third Faculty of Medicine, Charles University, Praque, Czech Republic is a health care provider of the European Reference Network for Rare and Complex Skin Diseases (ERN Skin).

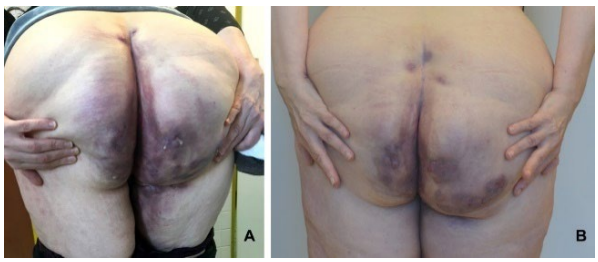

FIGURE 1 Before treatment (A), After 4 months of risankizumab therapy (B)

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P81 | LAight® therapy is an effective treatment option in patients with hidradenitis suppurativa Hurley stage I and II: a multicenter randomized, controlled trial (RELIEVE)

Michael Schultheis[1]; Petra Staubach[1]; Stephan Grabbe[1]; Christian Ruckes[2]; Georgios Nikolakis[3]; Esther von Stebut[4]; Uwe Kirschner[5]; Lukasz Matusiak[6]; Jacek C. Szepietowski[6]
[1]Department of Dermatology, University Medical Center, Johannes Gutenberg University, Mainz, Germany; [2]Interdisciplinary Centre for Clinical Studies, University Medical Center, Johannes Gutenberg University, Mainz, Germany; [3]Departments of Dermatology, Venereology, Allergology and Immunology, Dessau Medical Center, Brandenburg Medical School Theodor Fontane and Faculty of Health Sciences Brandenburg, Dessau, Germany; [4]Department of Dermatology, Faculty of Medicine, University of Cologne, Cologne, Germany; [5]Outpatient Office, Dermatology, Mainz, Germany; [6]Department of Dermatology, Venereology and Allergology, Wroclaw Medical University, Wroclaw, Poland

Background: Hidradenitis suppurativa (HS) is a chronic skin disease with inflammatory nodules, abscesses and fistulas which typically appear in the axilla and groin region.
Objectives: The RELIEVE study aimed to evaluate the potential role of LAight® therapy in the current treatment algorithm of Hurley Stage I and II.
Methods: The RELIEVE study was performed as a two-period multicenter randomized controlled trial with blinded assessment. In period A 88 participating subjects were randomized into either an intervention group (IG) which received topical clindamycin 1% solution combined with 8 additional bi-weekly treatments with LAight® or a control group (CG) which was treated with topical clindamycin 1% solution only. The primary efficacy endpoint was the change in International Hidradenitis suppurativa score system (ΔIHS4) at week 16 to baseline. Secondary endpoints were DLQI, HiSCR, Pain-NRS and HADS.
Results: In total 81 patients were included in the endpoint analysis in period A. After 16 weeks of treatment, the ΔIHS4 of IG was −7.2 ± 6.7 (−60.0%), in CG (−1.8 ± 5.6, −17.8%, $p < 0.001$), which was a significant improvement of the primary endpoint. Secondary endpoints confirmed that the efficacy of the combined treatment was dominant over monotherapy.
Conclusion: The results of the primary endpoint analysis of period A of the RELIEVE study show that the combined therapy with LAight® and topical clindamycin 1% solution, resulted in a significant reduction of burden of disease by decreasing disease activity/severity and improvement of quality of life in comparison to topical clindamycin 1% solution monotherapy.
Acknowledgements: The Departments of Dermatology, Venereology, Allergology and Immunology, Dessau Medical Center, Dessau, Germany are health care providers of the European Reference Network for Rare and Complex Skin Diseases (ERN Skin).

P89 | The role of negative pressure wound therapy in the management of axillary hidradenitis suppurativa

Anne-Cécile Ezanno[1,4]; Manuela Perez[2,4]; Anne-Claire Fougerousse[1,4]; Philippe Guillem[3]; GEM ResoVerneuil[4]
[1]HIA Begin, St Mande, France; [2]CHRU, Nancy, France; [3]Clinique Val d'Ouest, Ecully, France; [4]Resoverneuil, Paris, France

Background: There is no consensus regarding the treatment of Hidradenitis suppurativa (HS). In severe cases of HS, medical therapy is inadequate and wide local excision offers the best hope for local disease control.
Objectives: The current study aimed to describe and evaluate the results of the use of negative pressure wound therapy (NPWT) as a method of healing for axillary defect resulting from wide surgical excision for management of HS.
Methods: We designed the study as a retrospective analysis based on the review of all consecutives patients undergoing surgical treatment for axillary HS between 2017 and 2019 and treated with combined wide surgical resection and NPWT. We analyzed data of 36 surgical procedures performed for 20 HS patients.
Results: Mean age was 27.1 ± 7.7 years, 60% were female, the average BMI was 28.2 ± 5 kg/m^2 and 55% were smoking. The average length of NPWT was 18.5 ± 9 days and mean complete healing time was 115 ± 85 days. For shouder mobility results, total of 9 (47.4%) patients were completely satisfied, For aesthetic results only 6 (31.6%) patients were completely satisfied. Concerning NWPT 14 (73.7%) patients were completely satisfied. In all, 12 (63.1%) patients recommending this surgery.
Conclusion: Our study demonstrates that the use of NPWT for axillary wound management after wide excision in HS is not only safe and simple, but also have a short operative time and hospital stay with acceptable complication rate and lower recurrence rate.

P90 | Cytokine profile of pus in patients with hidradenitis suppurativa (HS): How it is associated with treatment response to cytokine inhibitors

Dimitra Stergianou; Vassiliki Tzanetakou; Amalia Bolanou; Theodora Kanni; Styliani Micha; Sofia Rellou; Evangelos J. Giamarellos-Bourboulis
4th Department of Internal Medicine, National and Kapodistrian University of Athens, Athens, Greece

Background: HS pathogenesis is characterized by remarkable heterogeneity. This is indirectly shown by the non-universal response of all patients to biological treatment. This may be due to large variability of cytokine production between patients.
Objectives: To predict the response to treatment with tumor necrosis factor-α (TNFα) or interleukin (IL)-1 inhibitors (anakinra or bermekimab) based on the cytokine profile in pus.
Methods: Pus concentrations of the cytokines TNF-α, IL-1α, IL-1β, IL-1 receptor antagonist (IL-1ra), IL-17A and IL-23 were measured in the pus of 55 HS patients. Pus samples were collected before and during anti-TNF-α and anti-IL-1 therapy by an enzyme immunoassay. The median concentrations of measurements before start of therapy were used to divide patients into low- and high-producers. Regarding IL-1, patients were classified as high-IL-1 producers if they had high concentrations of at least two of IL-1α, IL-1β and IL-1ra.
Results: Patients were classified into four patterns of cytokine expression based on pus concentrations of TNFα and IL-1. 27.3% (n = 15) was stratified as low-TNF/low-IL-1; 30.9% (n = 17) as high-TNF/low-IL-1; 18.2% (n = 10) as low-TNF/high-IL-1; and 23.6% (n = 13) as high-TNF/high-IL-1. Patients with high-IL-1ra had lower counts of abscesses and inflammatory nodules. Achievement of Hidradenitis Suppurativa Clinical Response (HiSCR) after 12 weeks under TNF and IL-1 inhibitors was higher among low-TNFα and low-IL-1b patients respectively (Figure 1).
Conclusion: Low-TNFα and low-IL-1 patients are at greater likelihood for favorable responses to respective anti-TNFα and anti-IL-1 treatment. Studies with greater number of patients are warranted.
Acknowledgements: This study was funded by an investigator-initiated research support from Novartis Hellas to Prof. E. J. Giamarellos-Bourboulis.

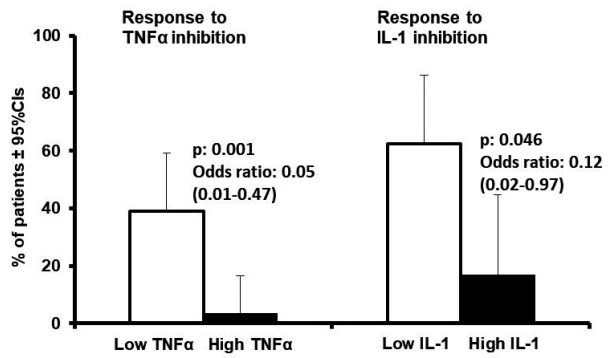

FIGURE 1 Achievement of HiSCR after 12 weeks under TNF and IL-1 inhibitors is higher among low-TNFα and low-IL-1β patients, respectively

P91 | Impact of plasma of patients with hidradenitis suppurativa (HS) on cytokine production by mononuclear cells: Association with response to treatment

Vassiliki Tzanetakou; Dimitra Stergianou; Styliani Micha; Theodora Kanni; Amalia Bolanou; Evangelos J. Giamarellos-Bourboulis
4th Department of Internal Medicine, National and Kapodistrian University of Athens, Athens, Greece

Background: Plasma contains danger-associated molecular patterns (DAMPs) that may modulate cytokine production. We hypothesized that circulating DAMPs of patients with hidradenitis suppurativa (HS) may modulate cytokine production capacity of mononuclear cells (PBMCs).
Objectives: To investigate how circulating DAMPs modulate cytokine production capacity in HS.
Methods: PBMCs from healthy controls were stimulated with lipopolysaccharide (LPS) and heat-killed Staphylococcus aureus (HKSA) in the absence/presence of 25% of plasma of 26 patients with HS. Plasma was derived before start of treatment with adalimumab. TNFα, IL-1β and IL-17A were measured in cell supernatants by an enzyme immunoassay. Analysis was conducted separately for responders and non-responders to adalimumab as this was defined by the HS clinical response (HiSCR) score after 12 weeks of treatment.
Results: The production of IL-1β and IL-17A in the presence/absence of plasma was greater among patients who achieved HiSCR than patients who did not achieve HiSCR (Figure 1). A IL-1β modulation ratio using HKSA stimulation above 0.54 was associated with greatest likelihood for HiSCR at week 12 (*p*: 0.015).
Conclusion: A bioassay using plasma from patients and PBMCs from healthy volunteers may be developed to predict efficacy of biologicals.
Acknowledgements: This study was funded by an investigator-initiated research support from Novartis Hellas to Prof. E. J. Giamarellos-Bourboulis.

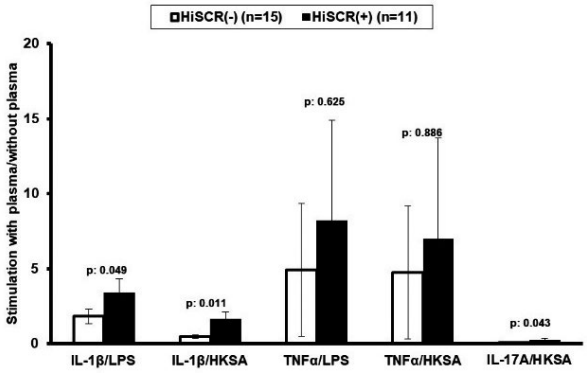

FIGURE 1 Greater production of IL-1β and IL-17A in the presence/absence of plasma among patients who achieved HiSCR than patients who did not achieve HiSCR

P103 | Management of challenging hidradenitis suppurativa cases from Lithuania

Tadas Raudonis; Rasa A. Vankeviciute; Jurate Grigaitiene; Ruta Ganceviciene
Centre of Dermatovenereology, Vilnius University, Vilnius, Lithuania

Background: Hidradenitis suppurativa (HS) is currently one of the most challenging and researched areas of dermatology. For many years HS had very limited treatment options which led to debilitating impact of the disease on patients' everyday lives. With the advent of biologics, dermatologists are able to suppress the immune response and inflammatory lesions; however, it is still very challenging to coordinate their surgical treatment when excision of remaining scarring and fistulae is necessary.

Objectives and Methods: We present two severe cases from a reference centre in Lithuania.

Results: Both patients developed first HS symptoms before biologics were widely available. At the time of diagnosis, both patients were Hurley stage III. The first patient was diagnosed in 2016 and was eventually treated with infliximab, which was later switched to adalimumab. This completely suppressed purulent discharge and development of new lesions with just scarring and inactive fistulae remaining in the scrotal area (Figure 1). The second patient was diagnosed with HS in 2009 when very limited treatment options were available, and this led to multiple surgeries (>10) and severe scarring in the axillar, inguinal, and gluteal areas. The addition of adalimumab helped suppress the development of new lesions.

Conclusion: Both cases demonstrate the aggressive and chronic course of HS, which requires continued care and a multidisciplinary approach. Current evidence suggests that the first treatment goal should be complete suppression of inflammation followed by extensive reconstructive surgery, which is difficult achieve without close collaboration of multiple specialists.

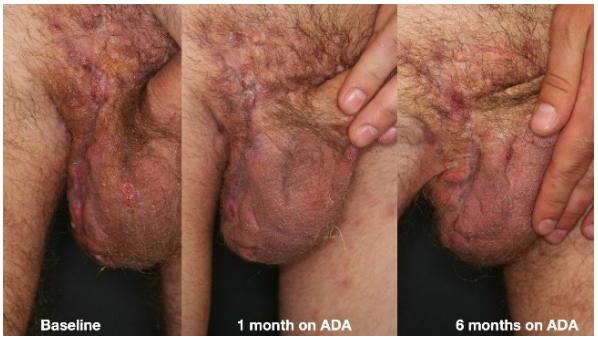

FIGURE 1 Adalimumab (ADA) efficacy on suppressing inflammatory HS lesions

P109 | Effectiveness of doxycycline and rifampicin combination-therapy in hidradenitis suppurativa: a descriptive prospective study

Júlia Verdaguer Faja; Verónica Mora-Fernández; Julio Bassas-Vila
Dermatology Department, University Hospital Germans Trias i Pujol, Badalona, Spain

Background: Hidradenitis suppurativa (HS) is an inflammatory disease that causes significant morbidity if untreated [1]. Antibiotics are the first line therapy, but some of the most common regimens associate high rates of side-effects [2-5].

Objectives: This study aims to determine the short-term efficacy and safety of the combined treatment doxycycline-rifampicin.

Methods: A single center prospective, descriptive cohort was performed, collecting HS patients who underwent doxycycline (100 mg/b.i.d)-rifampicin (300 mg/b.i.d) regimen for 10 weeks, using the validated outcomes refined Hurley staging and IHS4.

Results: A total of 8 patients were recruited. Regarding effectiveness after the cycle completion, 5 (62.5%) presented clinical improvement, obtaining an average improvement rate of 91% compared to their basal IHS4 score, including one case of complete remission. On their follow up, 2 obtained sustained response over time (week 18), another 2 required new regimens of antibiotic due to flare-ups after the cycle completion, while in one case antibiotic was used as a bridge therapy to initiate biologics. However, 3 (38.5%) patients experienced difficult disease control despite the full regimen, including one case of premature treatment disruption because of clinical worsening. These 3 started biological agents as next therapeutic step. Finally, no relevant adverse effects were reported in relation to this regimen.

Conclusions: The current work has been designed as a pilot study. Analysis of the data shows that doxycycline-rifampicin therapy might be a valid alternative regimen to treat HS, avoiding the high rate of side-effects. After this preliminary study we consider carrying out a larger study to confirm these findings.

References: [1] Gulliver W, Zouboulis CC, Prens E, Jemec GBE, Tzellos T. Evidence-based approach to the treatment of hidradenitis suppurativa/acne inversa, based on the European guidelines for hidradenitis suppurativa. *Rev Endocr Metab Disord* 2016;17:343–351.
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P120 | Effect of Adalimumab on skin pain in patients with Hidradenitis Suppurativa: a systematic review and meta-analysis

Aikaterini Tsentemeidou; Nikolaos Sideris; Efstratios Vakirlis; Demeter Ioannides; Eleni Sotiriou
First Dermatology Department, Medical School, Aristotle University, Thessaloniki, Greece

Background: Pain is experienced by most patients with hidradenitis suppurativa (HS) and has a severe impact on their quality of life. Its management still presents a challenge. Adalimumab, a TNF-a antagonist, has shown promising results in HS-related pain reduction.
Objectives: To aggregate and synthesize all existing evidence regarding the effect of adalimumab on HS-associated skin pain.
Methods: We identified original controlled and uncontrolled studies with participants receiving adalimumab, which included change in pain score post-treatment comparing to baseline as an endpoint. We searched MEDLINE, ScienceDirect, the Cochrane Library, ClinicalTrials.gov and International Clinical Trials Registry Platform. The primary endpoint of our study was mean change (continuous variable) of pain scores at week 12 comparing to baseline.
Results: We performed a meta-analysis of four randomized controlled trials (282 patients in the intervention group and 266 patients in the control group) (Figure 1). Adalimumab brought about a 0.418 reduction in mean pain score at its worst with 95%CI [−0.588, −0.248] and $p = 0.000$ at 12 weeks after treatment commencement. Four more studies were included in a qualitative synthesis, two of which reported statistically significant reduction in pain scores at week 12.
Conclusion: Adalimumab could be prescribed more readily in cases of hidradenitis associated with significant skin pain.

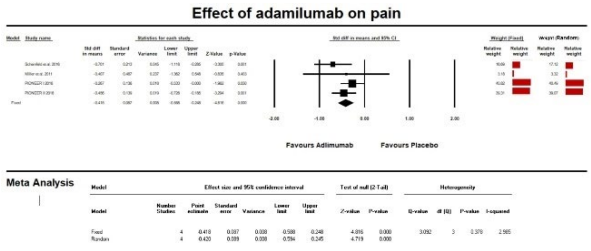

FIGURE 1 Effect of adalimumab on pain: meta-analysis of four clinical trials. Forest plot of comparison between adalimumab and placebo regarding skin pain reduction: adalimumab significantly reduced mean pain score at week 12 comparing to placebo. Standard mean difference = −0.418, 95% Confidence Interval [−0.588, −0.248], $p = 0.000$

P121 | Therapeutic drug level monitoring in patient with hidradenitis suppurativa

Mareike Alter
Otto-von-Guericke Universität Magdeburg, Universitätshautklinik, Magdeburg, Germany

Background: Therapeutic drug level monitoring treated with anti TNF-inhibitors (e.g. adalimumab (ADA) or infliximab (IFX)) is common use for patients with inflammatory bowel diseases (IBD) [!]. Patients with low drug level or/and anti-drug antibodies are likely to develop treatment failure in patients with IBD.
Objectives: Our hypothesis is that patients with hidradenitis suppurativa (HS) develop anti-drug antibodies against TNF-inhibitors similar to patients with IBD.
Methods: Most common TNF-inhibitor used for patients with HS is ADA.
Results: Low levels of adalimumab due to presence of anti-drug antibodies against ADA are correlated with treatment failure similar to patients with IBD. In addition patient-specific factors (e.g. adipositas or high inflammatory activity) may result in insufficient levels of ADA which can promote anti-drug antibodies against ADA.
We show a case study of 5 patients with HS and treatment failure to ADA due to anti-drug antibodies against ADA and low levels of ADA.
Conclusion: Therapeutic drug monitoring should be performed as a matter of routine in patients with HS treated with TNF-inhibitors. Early discovery of anti-drug antibodies and low drug levels can result in a therapeutic change and will optimize treatment outcome. Further data to support our hypothesis is needed.
Reference: [1] Steenholdt C. Personalized therapy with TNF-inhibitors in Crohn´s disease: Optimizing treatment outcomes by monitoring drug levels and anti-drug antibodies. *Dan Med J* 2016;63:B5270.

P125 | Perifolliculitis capitis abscendens et suffodiens with hidradenitis suppurativa and nodulocystic acne treated with adalimumab

Ichiro Kurokawa
Dermatology, Meiwa Hospital, Nishinomiya, Japan

Background: Perifolliculitis capitis abscendens et suffodiens (PCAS) with hidradenitis suppurativa (HS) and nodulocystic acne (NCA) has been successfully treated with adalimumab.
Objectives, methods and results: A 18 years-old-man had been suffered severe painful and itchy hemorrhagic ulceration, nodules, scar and alopecia on his occipital area with insomnia for 6 year ago (Figure 1). He had nodulocystic lesion on his face and painful nodules on his buttock. He was diagnosed as PCAS with HS and NCA. He was treated with adalimumab for two months. Significant improvement was observed. The hemorrhagic ulceration was improved,

resulting scar formation and re-epithelialization. Severe pain and itching promptly subsided. Additionally, nodulocystic lesions on the face and painful nodules on the buttock was improved remarkably.
Conclusion: Adalimumab is one of candidates to treat refractory acne related disorders such as PCAS, HS and NCA.

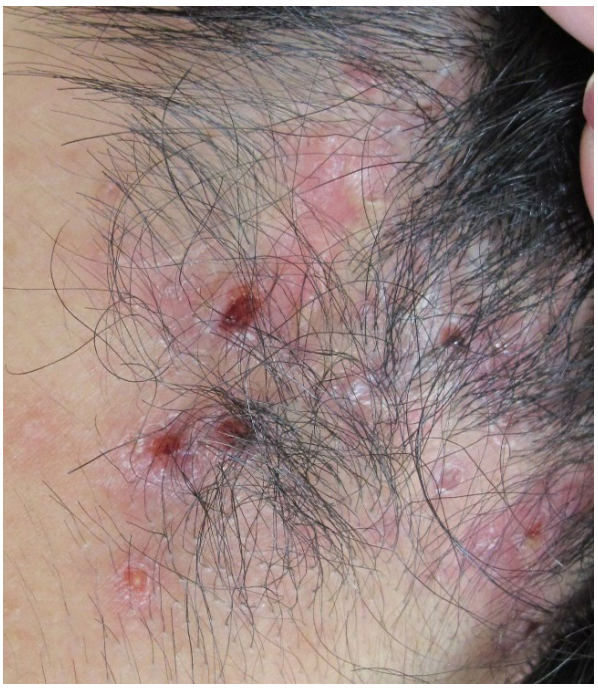

FIGURE 1 Occipital area before the treatment. Severe painful hemorrhagic ulceration and nodules with alopecia were observed

P141 | Adalimumab long-term survival in patients with moderate-to-severe hidradenitis suppurativa

Eva Vilarrasa[1]; Cristina López-Llunell[2]; Eugenia Agut-Busquet[1]; Flavia Bittencourt[1]; Luis Puig[1]; Jorge Romaní De Gabriel[2]
[1]*Dermatology, Hospital de la Santa Creu i Sant Pau, Universitat Autònoma de Barcelona, Barcelona, Spain;* [2]*Dermatology, Hospital Parc Taulí, Universitat Autònoma de Barcelona, Sabadell, Spain*

Background: Drug survival (DS) is defined as the percentage of patients who remain on a therapy for a certain period of time. It is mainly influenced by effectivity and tolerance. Currently, adalimumab is the only approved biological treatment for moderate-to-severe hidradenitis suppurativa (HS). Other biological drugs for HS are prescribed in Spain as second- or third-line therapies.
Objectives: 1) Measure DS of biologics prescribed for HS, and compare among different drugs. 2) Determine the cause of treatment discontinuation, and analyse the influence of different variables in DS rates.
Methods: 208 courses of biologic treatment in 148 patients with moderate-to-severe HS were included. We used Kaplan–Meier survival curves and Cox regression to examine drug survival patterns.
Results: 145 courses of adalimumab, 20 with ustekinumab, 18 with infliximab, 5 secukinumab, 5 risankizumab, 3 guselkumab, 1 ixekizumab and 1 certolizumab were analysed. DS for all biologics/group of biologics was calculated (Figure 1). 71.73% of patients were still on adalimumab at 52 weeks of follow-up, and the median time of survival for patients receiving adalimumab was 798 days. Median time of survival for infliximab was 482 days, for ustekinumab and anti-IL23 drugs was 561 days, and for anti-IL17 group was 237 days. No statistical significant differences were observed for adalimumab therapy compared to the other drugs (p-value = 0.1376).
Conclusion: Adalimumab was associated with a high drug survival. The most common reason for discontinuation was loss of efficacy (33.1%), whereas adverse events accounted for a low percentage of treatment terminations (5.5%).

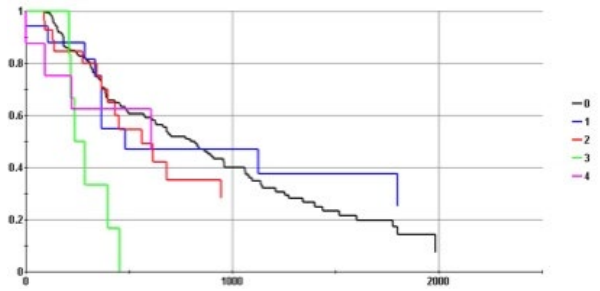

FIGURE 1 Kaplan-Meier estimation of drug survival for biologics in Hidradenitis Suppurativa. 0 = Aadalimumab; 1 = infliximab, certolizumab; 2 = ustekinumab, guselkumab, risankizumab; 3 = IL17 (secukinumab, ixekizumab); 4 = others. y-axis = Survival Probability; x-axis = Time (days)

P142 | Facial hidradenitis suppurativa successfully treated with adalimumab

Hirune Cembrero Saralegui; Fernando Alfageme Roldán; Mercè Grau Pérez; Lucía Turrión Merino; Marta Elosua González; Elena López-Negrete Arenal; Rita Cabeza Martínez; Mercedes Sigüenza Sanz; Gaston Roustán Gullón
Hospital Universitario Puerta de Hierro Majadahonda, Majadahonda, Spain

Background: Atypical locations of hidradenitis suppurativa (HS) such as the face and the neck are not commonly seen, moreover when HS typical sites are not involved [1-4]. Therefore, facial HS can be usually mistaken with acne vulgaris.
Objectives and methods: We report 2 male patients with facial HS treated with adalimumab. Clinical and sonographic response

was achieved and no treatment adverse events were reported. Full data will be presented at the 10th Conference of the European Hidradenitis Suppurativa Foundation.

Results: HS has a chronic and debilitating course that might cause disfiguring skin lesions. Early diagnosis and treatment are paramount in order to avoid non reversible cutaneous lesions. Bridged scars and lack of response to isotretinoin suggest facial HS but clinical features can sometimes be misleading. Ultrasound evaluation has a key role in early diagnosis, as wells as, in treatment response follow-up. Treatment of HS is sometimes challenging, even more in facial lesions, as are not widely reported.

Conclusion: In moderate and severe facial HS adalimumab could be a therapeutic option, with a good safety profile and optimal response.

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P163 | Biologic therapy is not associated with increased COVID-19 severity in hidradenitis suppurativa: Preliminary findings from the Global Hidradenitis Suppurativa COVID-19 Registry

Haley B. Naik[1]; Raed Alhusayen[2]; Sandra Guilbault[3]; John R. Ingram[4]; Margaret V. Kudlinski[1]; Michelle A. Lowes[5]; Angelo V. Marzano[6,7]; Maia Paul[1]; Bente Villumsen[8]; Christine A. Yannuzzi[9]
[1]Department of Dermatology, University of California, San Francisco, CA, USA; [2]Dermatology Division, Department of Medicine, University of Toronto, Sunnybrook Research Institute, Toronto, Canada; [3]Hope for HS, Troy, MI, USA; [4]Department of Dermatology and Academic Wound Healing, Division of Infection and Immunity, Cardiff University, Cardiff, UK; [5]The Rockefeller University, New York, NY, USA; [6]Dermatology Unit, Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico, Milan, Italy; [7]Department of Pathophysiology and Transplantation, Università degli Studi di Milano, Milan, Italy; [8]Patientforeningen HS, Copenhagen, Denmark; [9]New York, NY, USA

Background: Hidradenitis Suppurativa (HS) patients may be at risk for severe COVID-19 and poor outcomes due to biologic therapies.

Objectives: Our objective was to determine if there was difference in COVID-19 severity between HS patients on biologics versus not, and between those who continued versus discontinued biologics.

Methods: COVID-19 cases in HS patients were reported into the Global Hidradenitis Suppurativa COVID-19 Registry by 1) HS patients or caregivers or 2) healthcare providers (HCP) from April 5, 2020 until December 10, 2020. Eligible cases had a completed survey, HS diagnosis by HCP or by screening questions, and COVID diagnosis by HCP. COVID-19 severity was based on hospitalization and oxygen support requirement and WHO criteria. Comparisons were tested with Fisher exact or Pearson chi square test. Multivariable logistic regression was used to adjust comparisons for demographic features and comorbidities.

Results: 101 and 30 eligible cases were reported by patients/caregivers and HCPs, respectively (Table 1). In patient-reported cases, HS patients taking biologics did not have greater odds of in-hospital treatment compared with those not taking biologics (OR 0.5, 95% CI [0.1, 2.4] p = 0.4). HS patients taking biologics did not have significantly greater odds of requiring oxygen support compared with those not taking biologics (OR 0.52, 95% CI [0.2, 1.8] p = 0.5). No differences in hospitalization, oxygen requirement or complications were observed for those who continued versus discontinued biologics (p > 0.5). In HCP-reported cases, COVID severity ranged from asymptomatic [3 (11.1%)] to mild [21 (77.8%)]/moderate [3 (11.1%)]. No difference in COVID severity was observed between patients taking biologics versus not (p = 0.3) and between those who continued vs discontinued biologics (p = 0.3). Dyspnea/acute respiratory distress syndrome was infrequently reported (4/27, 13.3%).

Conclusion: Initial findings from this registry, albeit limited in sample size, suggest that COVID in HS patients was mild to moderate overall, with no impact of biologics on COVID severity and outcome.

Acknowledgements: Study recruitment has been supported by the US and Canadian Hidradenitis Suppurativa Foundations. The Department of of Dermatology, Cardiff University, Cardiff, UK is a health care provider of the European Reference Network for Rare and Complex Skin Diseases (ERN Skin).

TABLE 1 Patient characteristics

Characteristics	Patient/Caregiver-Reported Cases			Healthcare Provider-Reported Cases		
	Biologic	No Biologic	All	Biologic	No Biologic	All
Number	19	82	101	17	13	30
Age, years (median, IQR)	34 (31, 46)	30 (26, 38)	32 (26, 40)	35 (28, 42)	37 (30, 42)	36 (28.3, 42)
Female sex	16 (84.2%)	76 (92.7%)	92 (91.1%)	12 (70.6%)	10 (77.0%)	22 (73.3%)
Race/ethnicity						
White	13 (68.4%)	57 (69.5%)	70 (69.3%)	6 (35.3%)	5 (38.5%)	11 (36.7%)
Black-African	2 (10.5%)	1 (1.2%)	3 (3.0%)	0	1 (7.7%)	1 (3.3%)
Black-African American	3 (15.8%)	1 (1.2%)	4 (4.0%)	4 (23.5%)	1 (7.7%)	5 (16.7%)
Asian	-	-	-	1 (5.9%)	1 (7.7%)	2 (6.7%)
Hispanic	1 (5.3%)	11 (13.4%)	12 (11.8%)	3 (17.6%)	1 (7.7%)	4 (13.3%)
Mixed race	2 (10.5%)	7 (8.5%)	9 (8.9%)	0	2 (15.4%)	2 (6.7%)
Other	0	3 (3.7%)	0	3 (17.6%)	1 (7.7%)	4 (13.3%)
Country						
United States	17 (89.5%)	46 (56.1%)	63 (62.4%)	8 (47.1%)	5 (38.5%)	13 (43.3%)
United Kingdom	1 (5.3%)	8 (9.8%)	9 (8.9%)	3 (17.6%)	2 (15.4%)	5 (16.7%)
Brazil	0	10 (12.2%)	0	1 (5.9%)	0	1 (3.3%)
Sweden	0	10 (12.2%)	0	-	-	-
France	-	-	-	0	3 (23.1%)	3 (10%)
Italy	-	-	-	3 (17.6%)	0	3 (10%)
Other	1 (5.3%)	6 (7.3%)	7 (6.9%)	2 (11.8%)	3 (23.1%)	5 (16.7%)
Comorbidities						
Obesity	12 (63.2%)	55 (67.1%)	67 (66.3%)	6 (35.3%)	6 (46.2%)	12 (40%)
Diabetes	1 (5.3%)	3 (3.7%)	4 (4.0%)	3 (17.6%)	2 (15.4%)	5 (16.7%)
Pulmonary disease	9 (47.4%)	18 (22.0%)	27 (26.7%)	2 (11.8%)	2 (15.4%)	4 (13.3%)
Tobacco Smoking	3 (15.8%)	15 (18.3%)	18 (17.8%)	-	-	-
CV disease	1 (5.3%)	1 (1.2%)	2 (2.0%)	1 (5.9%)	0	1 (3.3%)
Hurley stage						
Hurley 1	2 (10.5%)	23 (28.0%)	25 (24.8%)	1 (5.9%)	3 (23.1%)	4 (13.3%)
Hurley 2	10 (52.6%)	32 (39.0%)	42 (41.6%)	5 (29.4%)	8 (61.5%)	13 (43.3%)
Hurley 3	6 (31.6%)	16 (19.5%)	22 (21.8%)	11 (64.7%)	2 (15.4%)	13 (43.3%)
Unknown	1 (5.3%)	11 (13.4%)	12 (11.9%)	-	-	-

P167 | Switching from biosimilar adalimumab to originator adalimumab and vice versa as an alternative to target switch in patients with hidradenitis suppurativa: a single center experience

Fernando Alfageme Roldán; Hirune Cembrero; Irene Salgüero; Mercedes Hospital; Constanza Martinez; Gaston Roustan
Dermatology, Hospital Universitario Puerta de Hierro Majadahonda, Madrid, Spain

Background: Adalimumab (ADA) is the elective treatment for moderate Hidradenitis suppurativa refractory to other systemic antibiotics and surgical treatment. The appearance of biosimilar ADA (b-ADA) lead to prescription to candidate patients with the main advantage of decreased price together with similar bioavailability and pharmacokinetics compared to originator ADA (o-ada). In the case of adverse reaction or primary/secondary failure to ADA, a common alternative is switch to other treatments with less evidence in the treatment of HS.

Objectives and methods: As an alternative we report a series of 6 patients ion our center who were switched from b-ADA to originator o-ADA (4 cases) and vice versa (2 cases) as a consequence of primary failure (2 cases), secondary failure (1 case), or other adverse reactions (psoriasiform eruption, local inflammation and alopecia areata).

Results: In 5 out of 6 cases switch to o-ADA or b-ADA was effective and avoided switch to other treatments with less evidence of efficacy.

Conclusion: In our experience switch from b-ADA to o-ADA and vice versa is an alternative to be taken before changing treatment to other molecules with less evidence in the treatment of these patients.