

SHORT PAPER

Medical management of osteoarthritis during the COVID-19 pandemic: a challenge for the present and the future

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Abstract

The ongoing Covid-19 pandemic has inevitably changed the treatment of many chronic diseases which has been suspended or has suffered dangerous slowdowns. Osteoarthritis (OA) is the most common musculoskeletal disease. As a result, the medical management of Osteoarthritis was heavily impacted by the pandemic, and it required new therapeutic strategies. The purpose of this descriptive review is to provide an overview of how much the pandemic has affected the medical management of osteoarthritis and to outline a number of possible countermeasures. The COVID-19 pandemic requires a “multimodal approach”: physicians are called to test the management of Osteoarthritis patients at a distance, through the tools made available by telemedicine, for all cases in which direct contact is avoidable. Therapies that instead require a direct intervention on the patient impose that all the procedures are carried out in complete safety, scrupulously keeping to the use of personal protective equipments.

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Introduction

The Covid-19 pandemic has changed countless aspects of the daily lives of millions of people around the world (1). The most significant element is the impact on the healthcare systems: entire hospital and outpatient services have been allocated to the management of COVID-19 patients; many screening plans have been stopped; the treatment of many chronic and common diseases, such as osteoarthritis (OA), has been suspended or has been dangerously slowed (1).

The prevalence of OA is steadily increasing, due to the increase of global longevity and the many lifestyle changes (2). OA is characterized by progressive joint cartilage loss, osteophyte formation, subchondral bone remodelling and chronic joint inflammation. Its chronic-degenerative course requires cyclical therapeutic interventions, to be repeated regularly over time (2). The pandemic has strongly influenced the medical management of OA, requiring new therapeutic strategies to shorten the barriers between doctors and patients imposed by social distancing (3).

Our aim was to provide an overview of how the pandemic affected the management of OA and to outline several possible countermeasures to optimize the remaining treatment opportunities, while strengthening them with new tools.

1. Pharmacological approaches for OA

International guidelines recommend non-steroidal anti-inflammatory drugs (NSAIDs) for the treatment of musculoskeletal pain in patients with OA (2). NSAIDs have been associated with adverse gastrointestinal, renal and cardiovascular (CVD) outcomes, and may pose a risk in the case of Sars-CoV-2 pulmonary infection. Although Voiriot et al. in June 2019 highlighted

associations between high pre-hospital exposure to NSAIDs and an increased risk of prolonged and complicated pneumonia (4), there is no clear evidence of a correlation between NSAIDs and the development of more severe forms of COVID-19. Indeed, a recent review by Ragni et al (5) suggests that physicians are advised to consider NSAIDs as the first option for symptom management, considering, as usual, the possibility of both respiratory and cardiovascular complications in different settings (5).

As for paracetamol, there is not much evidence of pain-relieving effectiveness for OA in the literature (2). However, during the COVID-19 pandemic, stimulating the use of acetaminophen (up to 1.5 g/day) may provide partial pain relief, especially if this drug is used in conjunction with topical anti-inflammatory products (3, 5). It is generally considered safer than NSAIDs, although there is some recent evidence of an increased risk of adverse outcomes with frequent doses of acetaminophen (5). All this should be carefully considered in the context of the recent evidence regarding the development of liver disease during hospitalization in patients with COVID-19: for these patients there is a higher risk of mortality (6). However, paracetamol does not increase the infectious risk, unlike NSAIDs, but it can be responsible for an underestimation of severity, so it is important that it is taken under medical supervision (5).

In long-term OA therapy, corticosteroids (CS) are commonly used, due to their powerful anti-inflammatory effect. However, their use, during COVID-19 infection, must be carefully monitored and, if possible, minimized, for potential complications related to their immunosuppressive effect. (2, 5).

If other analgesics are ineffective or contraindicated, opioids are effective for controlling OA-related pain (5). Their use requires caution, although it is not related to an increased risk of contracting COVID-

19. Both weak and strong opioids can cause respiratory depression and therefore it is essential that such therapies are constantly monitored by medical experts.

During the pandemic, the population was asked to self-isolate and live-in home isolation for several weeks. This has resulted in a change in diet and physical activity habits (impact factors on OA) (3). Many studies attest the usefulness of chondroprotective products (SYSADOA, collagen peptides, vitamin C, sodium hyaluronate and glucosamine) in long-term therapies to reduce the symptoms of osteoarthritis and implement joint integration (7, 8). Viscosupplementation has the advantage of having limited side effects and can be used safely independently of patients, as a dietary supplement (8).

2. The opportunity of telemedicine

Telemedicine is no longer a futuristic challenge, but a great opportunity. The closure of the outpatient management services for chronic musculoskeletal diseases has led to the opening of virtual clinics. Telemedicine is applicable not only during the pandemic period, but it can also significantly improve access to care, for geographically remote areas or for patients who have physical, financial and logistical difficulties (9). In April 2020, the Italian Society of Physical and Rehabilitation Medicine (SIMFER) launched the experimentation of a national telerehabilitation service, which in a few months has followed over 1,200 patients throughout Italy (9). Despite the difficulties related to the barriers due to the age of the patients (partially overcome thanks to the introduction of easy-to-use technologies) and the absence of real medical devices for clinical evaluation, the promoters of the initiative highlighted important advantages linked to the use of telemedicine, in a

way that patients' motivation to join the therapies increased significantly; the costs were reduced both for patients, who did not have to face any type of travel, and for the medical service, in terms of reduction of treatment spaces and the need for human resources (9). Home physical therapy with digital tools, including video feedback and wearable sensors, will facilitate recovery for patients and increase compliance with cost and results optimization (10).

It's a common opinion that telemedicine cannot completely replace traditional medicine, but during an emergency it is important to operate as best as possible to counteract the worsening of the patients' clinical conditions. COVID-19 lockdown significantly impacted pain, joint function, physical function and activity in patients with severe hip and knee OA (3).

A recent review, about the home-based management of knee-OA during COVID-19 pandemic, affirms that virtual education about self-management strategies could be part of tackling knee-OA; particularly, initiating an exercise program involving aerobic activity, strengthening and flexibility are recommended, also to reduce taking drugs (10).

There is no doubt that tele-rehabilitation can be useful in the management of the follow-up of chronic diseases such as OA, which often requires control visits aimed at the easy management of drug therapies, which must be used safely, ensuring their effectiveness and safety.

3. Mini-invasive approaches for OA

Intra-articular injections are an established reality for OA therapy. Commonly used drugs are hyaluronic acid, steroids and platelet rich plasma (2). In cases where OA is severe, but patients cannot undergo surgery, radiofrequencies, which control pain by unnerving or significantly remodulating the

treated joints, are a solution (11).

Obviously, during the COVID-19 pandemic, minimally invasive activities were suspended or reduced, compared to what happened previously. It therefore becomes essential to draw up the rules and good practices that allow these activities to be carried out in maximum safety, thus also aiming to avoid the risk of spreading Sars-CoV2.

4. Safety in minimally invasive procedures

Many studies have addressed the general issue of safety in minimally invasive procedures. A consensus initiative on clinical and organizational criteria for intra-articular injection therapies in OA was conducted among experts in Italy in 2015: it is stated that all precautions should be taken to reduce the risk of contamination at injection sites and that physicians should be encouraged to use the best way to protect patients from possible septic events (12).

In addition, in the pandemic context, the need to promote the use of personal protective equipment (PPE) for both patients and healthcare professionals must be considered.

In April 2020 SIMFER proposed the interim indications for the protection of users and health professionals in physical medicine and rehabilitation interventions in outpatient and home-based settings in the post-emergency COVID-19. Physicians are required to wear disposable gowns, masks and, in some cases, face shields. Gloves must always be worn, and hand cleaning and disinfection must be repeated by patients, as well as cleaning the rooms (9).

The same precautions, especially in terms of hand disinfection, have been encouraged in the exercise of manual medicine by many experts in the field (13).

In this way the cyclical nature of infiltrative

and manual therapies can be maintained, also safeguarding their effectiveness.

Adherence (related to medical evaluation) of patients with OA has drastically reduced since the beginning of the SARS-CoV-2 pandemic, both because medical evaluations at outpatient clinics have been postponed and because patients were reluctant to attend the clinics, due to health protection problems.

It is also important to underline that the necessary restrictive measures linked to the pandemic, in many cases have led to an increase in sedentary lifestyle, which, in addition to being a risk factor for the progression of osteoarthritis, is certainly a factor in aggravating sarcopenia, which in fact very often occurs in association with osteoarthritis in elderly subjects and an increase in the Body Mass Index. From this point of view, the approach to gonarthrosis cannot be separated from a careful evaluation of these aspects (14, 15).

Conclusions

The main objective in the medical management of OA during the COVID19 pandemic is therefore to guarantee therapeutic continuity to a wide category of patients suffering from chronic painful pathology and therefore destined to long-term therapies.

The COVID-19 pandemic requires a “multimodal approach”: physicians are called to test the management of OA patients at a distance, through the tools made available by telemedicine, for all cases in which direct contact is avoidable.

Therapies that instead require direct treatment on the patient impose that all procedures are carried out in complete safety, scrupulously keeping to the use of PPE.

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Riassunto

Gestione medica dell'osteoartrosi durante la pandemia di COVID-19: una sfida per il presente ed il futuro.

La pandemia di Covid-19 in corso ha inevitabilmente cambiato il trattamento di molte malattie croniche che è stato sospeso o ha subito pericolosi rallentamenti. L'osteoartrosi (OA) è la malattia muscolo-scheletrica più comune. Di conseguenza, la gestione medica dell'OA è stata fortemente influenzata dalla pandemia e ha richiesto nuove strategie terapeutiche. Lo scopo di questo short paper è fornire una panoramica di come la pandemia ha influenzato la gestione medica dell'osteoartrosi e delineare una serie di possibili contromisure. La pandemia COVID-19 richiede un "approccio multimodale": i medici sono chiamati a testare la gestione dei pazienti OA a distanza, attraverso gli strumenti messi a disposizione dalla telemedicina, per tutti i casi in cui il contatto diretto è evitabile. Le terapie che invece richiedono un trattamento diretto sul paziente impongono che tutte le procedure siano svolte in completa sicurezza, attenendosi scrupolosamente all'uso dei dispositivi di protezione individuale.

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