

The issue of infertility in times of COVID-19: what do we know about it?

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Abstract

Couple infertility constitutes a major source of concern and even distress for those involved, affecting roughly 50-80 million people in the world, according to World Health Organization data. There is no denying that medical and technological advancements in the field of assisted reproductive technology (ART) are among the greatest and most beneficial achievements of modern medicine. Countless couples have been able to achieve parenthood who in the past could not have, thanks to ART. Infertility itself used to be deemed insurmountable, especially when arising from uterine conditions (referred to as absolute uterine factor infertility, AUFI), neoplastic conditions or major complications affecting reproductive organs during previous pregnancies.

The inability to have children is often considered by couples as a failure severely impacting their relationships, due to the unfulfilled biological potential in regard to parenting. However, in addition to its significance as a social problem, infertility is a medical issue which requires a strict and clearly defined path of diagnosis and treatment, particularly in times of COVID-19, when access to essential care has often been delayed with potentially harmful repercussions for patients seeking to achieve parenthood or to keep their fertility. *Clin Ter 2021; 172 (6):e517-519. doi: 10.7417/CT.2021.2368*

Key words: infertility, assisted reproductive technologies, oncofertility, COVID-19 pandemic

Introduction

Couple infertility, viewed as a taboo issue for centuries, continues to be a major source of concern and even distress for those involved, affecting between 48 million couples and 186 million individuals globally (1). Medical advances in the field of assisted reproductive technology (ART) are undoubtedly among the greatest achievements of modern medicine. ART is capable of enabling countless couples to achieve parenthood who in the past would not have been able to do, due to a condition, infertility itself, once deemed insurmountable, possibly arising from uterine conditions (referred to as absolute uterine factor infertility, AUFI) (2) or

major complications damaging reproductive organs during previous pregnancies (3).

The inability to have children is often considered by couples as a failure severely impacting their relationships, due to the unfulfilled biological potential in regard to parenting. However, in addition to being a social problem, infertility is a medical problem, which requires a strict and clearly defined path of diagnosis and treatment (4).

ART remarkable development does entail unprecedented ethical and regulatory challenges

Although ART has seen such an impressive evolution over the past decades, ever-advancing medical knowledge and technological innovations entail several complex ethical issues still largely unsolved.

It is worth considering, for instance, that even women with AUFI stemming from aplasia of the uterus or those hysterectomised can experience pregnancy and have biologically related offspring through uterine transplantation, a still experimental and complex procedure through which live births have been achieved (5, 6).

Such advances are bound to make further progress, hence, striking a balance between potentially conflicting rights will be key to making such techniques ethically viable for mainstream use over time (7).

Low fertility and birth rates can negatively reshape nations

Nowadays, the opportunity to access infertility treatment has had a significant boost: in Italy, according to the annual report presented by the Health Ministry to Parliament in 2017, between 2014 and 2015 couples treated with ART techniques grew from almost 71,000 up to over 74,000 (+4.9%), while the cycles carried out saw a 4.6% increase. Such findings refer to the numbers relative to homologous assisted fertilization, with requests for assisted fertilization increasing by almost 20% (8).

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The fast and very consequential developments in medical reproductive technologies have provided more and more solutions to the problem of infertility, thus paving the way for new highly innovating options and opportunities. Such fast-moving innovation has however raised ethical and legal concerns, and sparked a spirited debate centered around complex issues such as the separation between the concept of procreation and sex and the very definition of concepts such as mother and family.

Over the last year and a half, scientific and technological progress in reproductive medicine has been affected by the COVID-19 pandemic, which has caused a sudden stop to ART procedures, as occurred for most of the medical branches and health services, including essential ones.

Oncological conditions, infertility and COVID-19

According to the most recent international guidelines, there are several well-established oncofertility options that can enable both female and male patients to preserve their fertility (9). As far as oncofertility strategies are concerned, patients should receive timely treatments aimed at preserving their fertility prior to undergoing cancer therapy, even in settings with limited resources.

The recent Coronavirus (COVID-19) pandemic has caused a relentless cascade of unprecedented events around the world, including severe restrictions and ensuing shortages of resources and services, including in the health care sector, with ethically painful developments. Thousands of patients around the world have seen their medical treatments canceled or postponed, which led to delayed diagnosis and treatments. In cancer care and oncofertility, that means reducing not just only the reproductive chances, but especially above all, survival rates.

Over the past year and a half, health care systems have in fact been paralyzed and reconfigured all over the world, in order to face the current health emergency and to manage the large numbers of patients requiring care. That extraordinary scenario has resulted in the interruption of many routine and elective services. The WHO report has found that the crisis in the health systems of 105 countries has particularly affected vaccination campaigns for diseases other than COVID-19 (70%), diagnosis and treatment of non-communicable diseases (69%), family planning and contraception (68%), diagnosis and cancer treatment (55%), treatment for mental illness and health disorders (61%). In such a difficult context, infertility and fertility preservation in cancer patients constitute a relevant public health issue that should not be neglected. Due to the current uncertainties as to the viral spread and the potential effects of the virus over the course of pregnancy in all ART centers around the world, the best strategies are being sought to safely cater to infertile couples rather than postpone their treatments, and this also means more streamlined and effective management strategies for positive and undiagnosed COVID-19 cases (10).

Nonetheless, it is worth pointing out that postponing treatments might risk incurring profound, irremediable and negative clinical and emotional implications, with potentially severe repercussions on the quality of life of the couples involved. Psychological implications caused by the COVID-19

pandemic have to be taken into account when treatment is delayed. It should be kept in mind that the Sars-CoV-2 virus and its pathogenetic mechanisms, its short and long-term health effects, as well as the social isolation to which the world population has been forced, have caused a substantial increase in psychological and emotional issues such as stress, anxiety and depression. All these mental conditions, as confirmed by scientific literature, are all factors that significantly and negatively affect reproductive capabilities. The association between depressive symptoms and sexual disorders is well-known and documented.

In addition to delaying the timing of diagnosis and treatment, the Covid-19 pandemic could therefore negatively affect the psychological well-being of infertile individuals or couples, thus setting in motion the pathophysiological mechanisms triggering anxiety and mood disorders responsible for negative feedback on the hypothalamus-pituitary-thyroid/adrenal axis, with consequent harmful impact on fertility.

Such psychological repercussions are certainly amplified in the case of concomitant or previous diagnosis of malignant neoplastic pathology.

Conclusions

COVID-19, which was declared a pandemic by WHO on 11th March 2020, has since brought about a major economic crisis, even more severe in Italy and other Southern European countries such as Spain and Greece. Adding to that, a very substantial decline has been reported in the annual growth curve of the Italian population, as many couples could no longer afford to enlarge their families due to the unfavorable economic context, thus considerably worsening the already serious demographic problems of a population such as Italy's, progressively aging and with one of the lowest fertility rates in Europe.

Considering that a woman's age is the most important parameter for determining the likelihood of a successful pregnancy, there are probably thousands of potentially fertile couples who have given up on the project of parenthood while waiting for the overall conditions to improve.

One could then assume that due to the Covid-19 pandemic, a couple's reproductive rights have been jeopardized and not adequately upheld, due to factors such as the impossibility of choosing when to have children, because of economic hardships, and the interruption of ART services, limited to emergency circumstances.

Conflict of interest: The authors declare that there is no conflict of interest regarding this manuscript.

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