



The clock is ticking away.....? COVID 19 and the infertile couples

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The COVID Era....exposes the vulnerabilities -

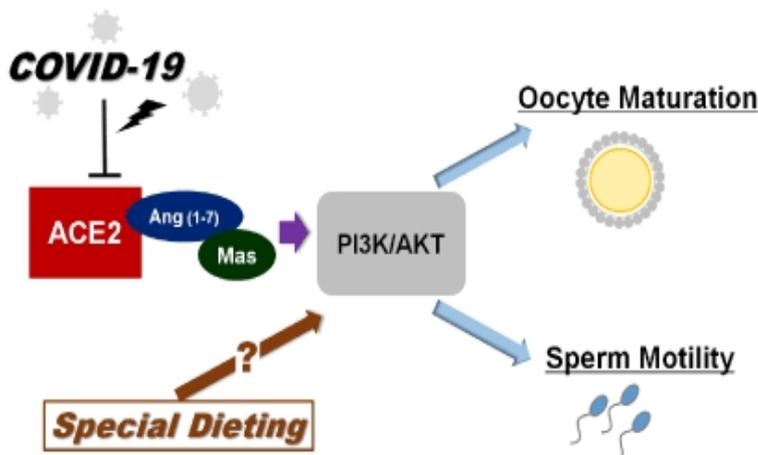
For last three months we have been behaving apparently rude given the pre-covid societal norms. From “no handshakes” and hugs to “keeping a distance while talking and meeting” we have come a long way in our fight against this virus, Vaccines are yet far away from our reach. Albeit COVID-19 is not the only disease we face as vulnerable humans. Plethora of infirmities ranging from fatal Cancers to various deadly infections like Tuberculosis and AIDS exist. People also suffer in silence with depression or fight unheard battles like domestic violence and many times the reason of such fallout between couples is the stigma of Infertility.

Childlessness renders a woman ostracized. They are made to feel barren ! Males are almost 50% responsible for the infertility cases . Breaking the societal barriers, spreading awareness and reaching out to them was a humongous tasks and all of a sudden COVID occurred bringing down the Global Health infrastructure to it's knees.

COVID-19 is itself an Infertility risk!

Many still contemplate the question and stumble upon various mechanisms via which COVID infection impacts fertility. COVIDs' spike proteins as we all know attach to the ACE 2 receptors and ACE2 is also expressed in the ovaries and testes giving rise to such speculations. It suggests that this enzyme affects germ cells and reproductive health. The ACE2/Ang 1-7 /Mas axis promotes meiotic resumption modulate the Follicular development, oocyte maturation and ovulation.

Not only in females but also in males reproductive tract adult leydig cells in testes ACE2/Ang 1-7/Mas axis activate sperm motility via the PIK3/AKT pathway. COVID 19 virus is thought to terminate this Axis ACE2/Ang1-7/Mas/PI3/AKT pathway and damage the host protective systems and sabotage the fertility protection environment by increasing the oxidative stress many times over.



A fertility expert's view:

Being a fertility expert requires a different approach and perspective, treating the couples with Assisted Reproductive Technology (ART) as their hope to parent a child. Having wasted significant time exploring various treatment options for their childlessness, Some get lucky during the journey and conceive naturally while around 53% of infertile couples need medical assistance. (Boivin et al, 2007)

The Assisted Reproductive technique or test tube baby undoubtedly has helped more than 5 million couples worldwide. But even though it's a 40 year old approach (the first baby “Louise Browne” was born in 1978) people lag their will and keep on dragging their decision to treatment. Over 80 per cent of people are not planning to conceive during the coronavirus (COVID-19) pandemic, perhaps putting to rest suggestions that the lockdown could lead to a rise in birth numbers.³

Current trend in ART in COVID-19:

According to 2018 statistics by ASRM (American Society for Reproductive Medicine), for each week of the covid-19 pandemic suspension 3554 babies will not be born .18642 babies could have been born from ART during a potential three-month period beginning in March when all new treatment cycles were suspended. An estimated 14280 babies from IUI and 13275 following reproductive surgeries could have been born.

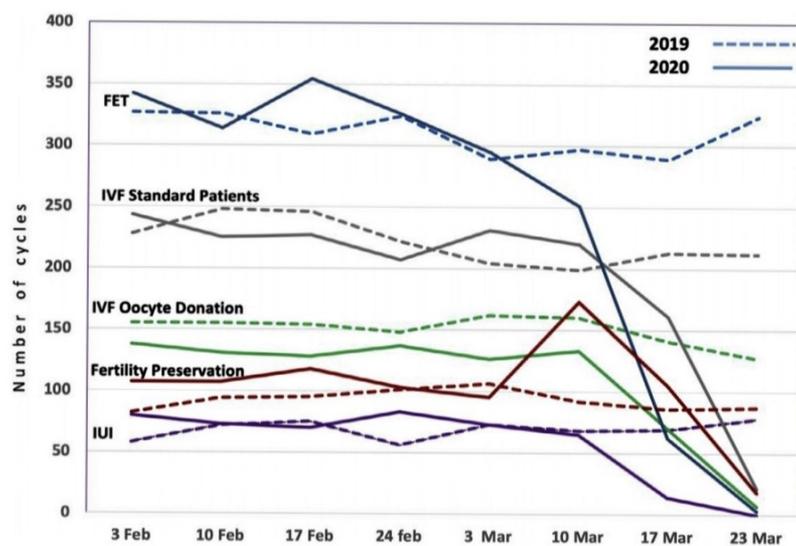
On March 17 2020 the American Society for reproductive medicine (ASRM) released its recommendation that all new treatment cycles should be suspended during the covid-19 and that care should be continued for patients who are currently in cycle or who require urgent stimulation in cryopreservation. In 2018 there were approximately 2,79,288 total cycles form in the United States this resulted in 74,590 babies being born.

(The below image is Reprod Biomed Online. 2020 Jul;

41(1): 1-5. Published online 2020 Apr 25. doi: 10.1016/j.rbmo.2020.04.015 source :: A picture of the covid-19 impact on IVIRMA fertility treatment clinics in Spain and Italy Antonio Requena, María Cruz, [...], and Antonio Pellicer)

The Great Dilemma

COVID-19 renders this fight against Infertility a race against time. Although 15% of the population globally suffers from Infertility, couples face difficulty in accessing the right care due to Inertia, Finances and Taboo attributed. Hopelessness and feeling of unworthiness generates a vicious cycle, amplifying stress and anxiety that substantiate their worst fears. Their only remedy are the ears that Consultants lend them to listen to their agony, counsel them to weed out the negativities. Not founding a confidant consultant may diminish their hope and grow their uncertainties and when times like these set in, their every worst fears get compounded.



on ventilators, which needs to be kept in the hospital, and which can be treated at home.

Yael Zamir, the co-founder and CEO of Embryonics said, "We want to see if we can use our technology to help with the treatment, the diagnosis and progress of COVID-19 patients and other diseases".

Covid-19 has paved the way for such groundbreaking innovations to thrive and bloom. Mapping the time lapse pictures of embryo's against end-result database geometric algorithms and AI deep learning models of successful IVF pregnancies the prediction for euploid embryos, Clinical Pregnancy, Live Birth Rate is achievable without invasive procedures like embryo biopsy. These out of science fiction strategies are happening in real-world around us all. Even in POST COVID Era the strategies that evolve now would pave the way for a much accessible better quality care and a patient centric one.

When we envisage in totality the straightforward Lockdown effects of Pandemic the unanticipated darkness is borne from multitude of reasons such as future economic worries, financial difficulties and potential effects on the child due to disease itself. The basket of choices that people used to enjoy has shrunken, priorities have been delineated again & again and forced them to sort out most important things from more important ones. Remember the CLOCK is always Ticking away and it is up to us to flex it in our favour

Silver lining around the dark clouds

But as they say and I quote, "perpetual optimism is a force multiplier". Worst we can do at such asking times is to get upset and plunge into pessimism. Resilience, Perseverance and Dynamisms is expected from Science which is the Lighthouse to guides us in otherwise stormy waters. As far as absolute Science is considered Experts have loaded ammunitions to fight against infertility.

Sperm and Oocyte banking by freezing technology can lock them in their age for eternity only to be thawed ICSI-ed and made embryos of in the suitable future and get transferred to in-utero. {ICSI- IntraCytoplasmic Sperm Injection}

Home Insemination through partner's prepared semen samples is being opted by fertility clinics to abide by the guidelines of social distancing and provide standard treatments of IUI (intra-uterine insemination) at the comfort of their homes. Even Semen Samples

are getting collected and couriered to the facilities to stop unnecessary visits to the clinic.

Unfavourable times require Unbelievable efforts! endovaginal telemonitoring : using internet-based self operated home monitoring of follicular growth in assisted reproduction technology is one such effort. When combined with already well established teleconsultation strategies in COVID Era this technology is so promising that it can nearly cut down the in-clinic physical foot-fall by more than 90% per cycle.

Artificial Intelligence :Machine learning using Deep Analytics is being employed to select the best embryos for implantation into the womb, and to tailor make the hormonal stimulation individualising treatments for in vitro fertilization (IVF) patients in this COVID-19 era. Embryonics now wants to use geometric deep learning to predict which COVID-19 patients will need to be put

deploying those gamut of treatment strategies and conflating all of recent advancements in ART and our battle against Infertility. The Crux is not to loose your HOPE!

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