

COVID – 19: Care in Gynecology

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Growing concerns are there regarding the risks of Severe Acute Respiratory Distress Syndrome Corona virus (SARS-CoV)-2 following surgical procedures. Surgical procedures covers all types of Open surgery, Endoscopic and the Robotic surgery. The pandemic (Covid – 19) is mainly due to the paucity of clinical knowledge about the virus. A set of six human corona virus are commonly known. Four of these viruses are common cold and circulate widely. The remaining two are the viruses that cause Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS – COV - 2). These single stranded RNA viruses are prevalent worldwide. SARS-COV was first noted in China in 2002.

Carlo Urbani, an Italian doctor and microbiologist was first to identify severe acute respiratory distress syndrome (SARS) as a dangerously contagious viral disease in 2002. The case fatality rate was nearly 10% in non pregnant population compared to 25% in pregnant women. He was first to warn WHO about the COVID – 19 pandemic in China. Unfortunately he became infected while in Bangkok, Thailand and died with the disease in 2003.

MERS-COV was detected in 2012. Infection has been reported to cause maternal and perinatal deaths. The main mechanism for transmission of the virus is thought to be by:

1) Direct human to human: when an infected person coughs or exhales droplets that is transferred to another person's nose, mouth or eyes or to enter the respiratory tract

2) Contaminated surfaces where larger droplets produced from an infected person are spread onto the surrounding surfaces. It is transmitted to another person when the contaminated surfaces are touched and then touching the eyes, nose or mouth.

Recently third mechanism of spreading has been proposed. It suggested that generation of SARS-COV -2 contaminated aerosols from an infected person is an important mode of spread. Thus the procedures that generate aerosols from the respiratory tract (laryngoscopy, bronchoscopy and endoscopy) or abdominal cavity, GI tract (laparoscopy, robotics) and the like are sufficient enough to infect another person.

All the organizations based on individual country, including WHO have published guidance on public health and social measures to protect against the SARS-COV-2 infection.

Added precautions with facemask or respirator: Face mask may be used if respirator is not available before entry into the patient room or care area. N 95 respirator (filter 0.3 micron) or respirators that offer a higher level of protection should be used instead of a facemask when performing or present for an aerosol generating procedure. Disposable respirators or facemasks should be removed and discarded after exiting the patient's room or the care area. The respirator or the facemask is discarded and hand wash with sanitizer is done.

Eye Protection: To use goggles or a disposable face shield that covers the front and sides of the face, upon entry to the patient room or care area. Personal eye

glasses and contact lenses are not considered for eye protection. Reusable eye protection (goggles) must be cleaned and disinfected

Virus and the body fluids: This RNA virus has been detected in the stool, urine and also found in the gastrointestinal mucosa. Till date knowledge about the existence of this deadly virus in seminal fluid is limited. A recent study (Li Diangang et al), from Shangqiu Municipal Hospital, China, with 38 patients has been reported.¹ Results of semen testing found in 6 patients (15.8%), were positive for SARS-CoV-2. More information is awaited as regard the risk of viral replicaton and its infectivity through semen. It is also important to know its duration of persistence in the seminal fluid.

Nothing special medical on actual management of the disease is known. Few patients need ventilator, for the management of complications like covid pneumonia. Mortality rate is high across the globe. Scientists have already declared the availability of vaccine is not a possibility by the next few months if not by the next year.

Immunology and the defense: Question remains with the immunity of a person that he/she has recovered from the disease. “Immunity Passport” or “Risk-free certificate” for an individual to travel or resume work is unknown. Currently there is no evidence that an individual, recovered from Covid-19 with antibodies, are protected from a second infection. Immunological process to develop antibodies is a multi-step complex process. It takes about 2-4 weeks. A non specific innate body response shows progress of viral invasion with the help of macrophages, neutrophils and dendritic cells. Adaptive response produce the antibodies (proteins and immunoglobins) to develop cellular immunity. The combined response may clear the virus from the body.² Since the body response is strong enough, it prevents the severity of the pathology and at times prevent the re-infection. Most studies showed development of antibodies who have recovered from the infection. Unfortunately as on date of writing this article, no study has confirmed the presence of antibodies SARS-CoV-2 confers immunity to subsequent infection in humans.

Laboratory tests that detect antibodies to SARS-CoV-2 in people including rapid immunodiagnostic tests, need further validation. Question remains

with the test's accuracy and reliability. Inaccurate immunodiagnostic tests often categorize a patient falsely negative or falsely positive. Any tests need accuracy in distinguishing between post infections from SARS-CoV-2 and those caused by the known set of six human corona viruses.³ Many countries are now testing for SARS-CoV-2 antibodies at the population level or for the health workers. It is now clear that one should not assume he/she is immune to a second infection because he/she has received a positive test result.⁴

WHO does not currently recommend the use of antigen detecting rapid diagnostic tools for patient care. However, research into their performance and potential diagnostic utility is highly encouraged. Antibody detection tests targeting Covid-19 may also cross react with other pathogens including other human corona viruses.⁵

Testing: Testing is critical for risk mitigation, data collection and directing critical resources including PPE. Testing is done at the discretion of state and individual clinicians. Pregnant women with suspected Covid-19 or who develop symptoms suggestive of Covid-19 should be prioritized for testing.⁶

Care in pregnancy: Care related to pregnancy, we have made a detailed discussion in the previous issue of the IJOPARB (2019; Vol.9: Issue No 4). It is available in the website (www.isoparb.org). Intrapartum care needs a multi-disciplinary team approach. There is no contraindication for corticosteroids managing preterm delivery. Woman with Covid-19 in labor, should admitted in the isolated delivery ward. Oxygen saturation to be maintained > 94%. As regard the mode of delivery, vaginal delivery is preferred. Till date Covid-19 has not been detected in vaginal secretions. Stool sample has been detected positive for the virus in 29% of cases. The virus is present in the urine sample of an infected patient. Epidural or spinal anesthesia is preferred to general anesthesia. General anesthesia or use of entonox gas should preferably be avoided due to the risk of increased aerosolization and spread of the virus. Cesarean section should be done with all the staff skilled to use the personal protective equipment (PPE).⁷ Cesarean delivery is done based on maternal or fetal indications. There should be minimum number of staff in the operating theatre. All the team members must wear PPE. Infants born to

mothers with known Covid-19 should be tested and isolated from other healthy infants. ICMR advises, asymptomatic pregnant woman, likely to deliver in next 5 days and residing in cluster or containment zones or large migration gatherings/evacuees, centers from hotspot districts to get tested for Covid-19.

Gynecological Operations:

Gynecological emergencies (ectopic pregnancy, pelvic endometriosis) are not uncommon. Many an elective gynecological operations (cancer) are in the waiting list for the last 3-4 months in most of the hospitals. In the past (1990s) laparoscopic surgery was favoured over open surgery for patients with AIDS. Lately, robotic surgery allow the surgical staff to work from a remote distance from the patient and also from each other in the surgical team. Unfortunately our knowledge as regard the viral transmission in surgical procedure is limited. Moreover, till date our understanding of Covid-19 is further limited. In many cases Covid-19 (SARS-CoV-2) include the SARS-CoV and the Merds-CoV. Covid-19 are highly contagious. The size of these particles ranges from 0.07 to 0.09 microns and are transmitted through droplet particles.⁸

Aerosolization of viral particles during surgery is a growing concern. Electro surgical smoke produced in surgery and consequent aerosolization raises the question regarding the theoretical risk of aerosolization of virus. HBV was isolated in surgical smoke. Several groups of surgeons found HPV in surgical plumes.⁹ However there was no evidence that aerosolized HPV-DNA could be transmitted to the surgeon.¹⁰ So far the 'American College of Surgeons' have stated there are insufficient data to recommend for/against an open versus laparoscopy approach.

Organizations are advocating the use of different modifications to prevent aerosolization due to the release of stagnant heated volume of gas from the peritoneal cavity. This is of equal concern for gynecological surgery when done either as an emergency or elective procedure. Health care delivery cannot be ignored or denied over months for anyone with or without emergency problem, as the duration of current SARS-CoV-2 is unknown.

Amongst surgeons around the world, major concern is the rise of viral transmission with the surgical procedures, as this RNA virus has been detected in

the stool and in the gastrointestinal mucosa. This observation has theorized the threat that the virus can be contracted from the abdominal surgery, be it obstetrics, gynecology or with general surgical procedures. The risk has risen further with the creation of pneumoperitoneum, use of electro surgical devices including harmonic energy sources during laparoscopic or robotic surgery. The concept is based mainly with the hypothesis that the spread of virus through the release of CO₂ and contaminated aerosols during and following laparoscopy and robotic surgery.¹¹ Aerosol Generating Procedures (AGP) like pneumoperitoneum with electro surgical smoke increases the risk of aerosol exposure to the operating team.¹² It is known that Covid-19 virus is present in the blood of the infected patient. It is also established that surgical smoke contains viral particles (HIV, HPV). Though there is no data till date supporting the presence of Covid-19 in surgical smoke but the possibility cannot be ignored. With this, there is absence of strong evidence to support the safety of endoscopic surgery when compared with open procedure keeping in mind the potential transmission of risk of viral particles.¹³ Nevertheless it essential that precautions should be taken to minimize any potential risks of viral transmission in this covid – pandemic. Unversal SARS-CoV-2 virology screening in all patients undergoing surgery is to be done. Test negative patients are operated with routine surgical infection control procedures. Surgery in test positive patients should be undertaken with full arrangement of safe surgical procedures.

Modifications for endoscopic surgery has been recommended creating a closed circuit for insufflation and with the use of some sort of smoke evacuator device. This is to avoid any release of pneumoperitoneum into the room. Desufflation at the end of the operation should be through a smoke evacuator device or direct suction. Smoke evacuator filter system for laparoscopy could be used.¹⁴ Filter with 0.1 micron is with efficiency of nearly 100%. On the contrary, based on the current scientific research and available knowledge, there is no scientific evidence to support the use of open surgery over laparoscopy or robotic one to reduce the risk of viral transmission (Covid-19).

There is still much to learn about the disease and its transmission.¹⁵ There is lack of evidence surrounding the SARS-CoV-2, virus transmission particularly in

endoscopic surgery. Non surgical treatments should be done where possible to reduce the horizontal transmission. Universal virology (SARS-CoV-2) screening should be done before undertaking any surgery. Attempts to minimize the smoke production with electrosurgical procedures should be the goal. Smoke evacuation filters or smoke evacuator devices should be used. Safety of the patient, all the members

of the surgical team and the health care workers are of utmost importance.

Readers are warned, the views made in this presentation, is based on the national and international guidance (BSGE 2020, ESGE 2020, AAGL2020). It is important for any practitioner, to follow the local and national guidance as available and to modify their practice accordingly.

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