HCFI Dr KK Aggarwal Research Fund

Minutes of an International Weekly Meeting on COVID-19 Held by HCFI Dr KK Aggarwal Research Fund

Topic: Heart surgery – Operating the critically ill, era of COVID

Speaker: Prof Dr Sujay Shad, *Co-Chairman Cardiac Surgery, Sr Consultant Cardiac Surgeon, Director-Heart-Lung Transplant, Sir Ganga Ram Hospital, New Delhi*

- When coronavirus disease 2019 (COVID-19) surfaced 2 years back, it came as a surprise as we did not have a clue as to how to manage the evolving situation. While the harsh lockdown in the initial phase of the pandemic provided an opportunity to sort out masks and personal protective equipments (PPEs), hospitals more or less came to a standstill at that time.
- Papers on myocardial injury in patients who survived COVID were published. There was a panic that even people who did not have apparent cardiac illness are suffering from some myocardial damage due to fibrosis visible on magnetic resonance imaging (MRI).
- Cardiac surgery was also reduced partly because of the lockdown and partly because of the rest and relaxation, stress which precipitated myocardial infarction (MI) also reduced.
- Mechanisms for myocardial injury in COVID-19 include direct angiotensin-converting enzyme (ACE)-mediated viral damage, exaggerated immune response causing hypoxic injury, microthrombosis and systemic inflammatory injury.
- The hyperinflammatory response phase was followed by recovery phase in the majority. Lung damage was important in the initial phase.
- There were multiple issues along the cardio-pulmonary axis. On MRI, there were pulmonary infiltrates/effusion and respiratory failure in suspected acute COVID-19 myocarditis. There was some left ventricle dysfunction, stress-induced cardiomyopathy, which could have contributed to the failing lungs. Diffuse myocardial edema on T2-weighted scans and hyperemia as early gadolinium enhancement was also seen. Overtime, there was lot of fibrosis in the form of necrosis/scar identified with late gadolinium enhancement.
- Emergency cases like aortic dissection, hemo-dynamic instability or patients whose symptoms are worsening underwent surgery, but there were lot of problems in these patients. The most important problem in these patients was persistent hypoxia postoperatively and persistent vasoplegic syndrome after the surgery.
- Elective work like valve repair for asymptomatic valvular disease was stopped completely and postponed if the patient stayed comfortable.
- Semi-elective patients were turned into elective wherever possible. Some patients underwent stenting to bypass the bypass surgery.
- A persistent requirement of vasoconstrictors and inotropes in substantial doses was observed in COVID patients, which lasted for as many as 5 days. This was seen even in patients who had mild COVID-19.
- It is important to understand the reasons for postponing cardiac surgery. The average mortality in patients with an active severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection ranged from 20% to 41%. The incidence of myocardial injury has been reported to be more than 25% of critically ill COVID patients.
- Nasal swabs or antibody tests for seroconversion were used to determine COVID status. In inconclusive cases, cycle threshold (Ct) value was used. Surgery could reasonably be done in asymptomatic patients with high Ct value. Patients with C-reactive protein (CRP) 5 times above normal could be operated. But surgeries in patients with very high CRP levels were postponed.
- Various postoperative complications included increased ventilator assistance time, length of intensive care unit (ICU) stay, atelectasis, pulmonary edema, gastrointestinal (GI) dysfunction, acute renal injury, coagulation disorders, atrial arrhythmia, etc.
- At 1 year, patients who were not hospitalized tended to do much better than those who were hospitalized. Cerebrovascular disorders, dysrhythmias, and other cardiac disorders such as heart failure, ischemic cardiomyopathy, cardiac arrest, cardiogenic shock, pulmonary embolism (PE), deep vein thrombosis (DVT) and superficial vein thrombosis occurred in these patients.

- The alpha wave could be side stepped because of the lockdown, but the Delta wave hit really hard. Majority of extracorporeal membrane oxygenation (ECMO) that took place in India were during the Delta wave.
- Some centers recommended ECMO early for patients who went from high-flow nasal oxygen (HFNO) to ventilators, while some patients were directly shifted to ECMO without going through the ventilator.
- This was also the time when there was shortage of hospital/ICU beds, oxygen including hospital staff. The mortality with ECMO therapy in the best of centers was 37% to 60%. In India, only 10% to 15% of patients on ECMO could be salvaged.

COVID-19 update

Speaker: Dr Monica Vasudev, *Allergist & Clinical Immunologist, Fellow of American Academy of Asthma, Allergy and Immunology, Advocate-Aurora Health, Wisconsin, USA*

- Global deaths have crossed 6 million. We are seeing a long tail of the pandemic and we cannot let down our guard.
- Surveillance of waste water in the US has shown that there was an increase in the amount of virus shedding in the first 2 weeks of March. More than one-third of places monitoring this showed a rising COVID-19 trend.
- There is still a need to continue to reinforce the benefits of immunization.
- Moderna and Pfizer have requested authorization from the Food and Drug Administration (FDA) for second boosters of their COVID vaccines. These requests were partly based on data from Israel, after the emergence of Omicron variant that showed a second booster dose reduces the infection rates as well as severe illness.
- A study in *JAMA Neurology* has reported that cognitive impairment was more common in older COVID patients aged ≥60 years, especially those with severe illness after discharge from hospitals vs. their uninfected peers.
- Children have low levels of antibodies. They have similar symptoms and levels of virus, but they seem to be able to clear the virus from their bodies much quicker than adults due to a more robust initial immune response. Its to be seen how well children are protected against future infections.
- About 1.6 billion children globally have been affected by the closure of schools due to the pandemic. Children in the low- and middle-income countries have been disproportionately affected as their schools tended to be shut for longer and they were less able to access remote learning.
- According to UN Education expert, Robert Jenkins, "we are running the risk of a lost generation… Without urgent action, many countries could end up without the skilled workers they need for future development."

Hong Kong update

Speaker: Dr Alvin Yee-Shing Chan, *Treasurer-CMAAO*

- The situation is not so good in Hong Kong. The current wave is the fifth wave.
- About 91.5% population is vaccinated with the first dose and nearly 82% are vaccinated with the second dose. So, about 19% of population has not yet received the second dose.
- There is high infection rate and mortality rate right now especially in the elderly above 80 years of age; only half of this population is vaccinated. Even in ≥70 years age group, less than 80% are vaccinated.
- There are around 200 deaths in a day, most of them are in the elderly and immunocompromised. The mortality rate is 0.5%.
- Fifty-six percent of young children (3-11 age group) are vaccinated with the first dose and 8% have been vaccinated with the second dose.
- It is hoped that 95% of the population would be vaccinated by early April.
- There are not enough isolation or hospital facilities. Daily cases were earlier around 30,000 but in the last 2 days have reduced to 2,000 per day.
- There are hidden cases as it is not mandatory to report the results of self-testing.
- Sewage water is being tested. If positive, then the building is put under lockdown and all residents are tested.
- Paxlovid and molnupiravir are now available in public hospitals and designated COVID clinics, but these are not yet available in the private sector.

Participants – Member National Medical Associations: Dr YehWoei Chong, Singapore, Chair of Council-CMAAO; Dr Alvin Yee-Shing Chan, Hong Kong, Treasurer-CMAAO; Dr Marthanda Pillai, India Member World Medical Council, Advisor-CMAAO; Dr Heidi Stensmyren, President, World Medical Association; Dr Ravi Naidu, Malaysia; Dr Mvuyisi Mzukwa, South Africa; Dr Angelique Coetzee, South Africa;

Dr Akhtar Hussain, South Africa; Dr Sonam Tshering, Bhutan; Dr Qaiser Sajjad, Pakistan; Dr Ashraf Nizami, Pakistan; Dr Salma Kundi, Pakistan; Dr Md Jamaluddin Chowdhury, Bangladesh

Invitees: Dr Monica Vasudev; Dr Sujay Shad; Dr Patricia La'Brooyi; Dr Lawrence HB Soh; Dr Khoonhui Yeo; Dr Stephen Chang; Dr Ng Hong Yi; Dr Joshua Lim; Dr Sanjeev Aggarwal; Dr Kuenza Wangmo; Dr Colin Goldberg; Dr Kiran Vinayek; Dr Manisha Kukreja; Dr S Sharma, Editor-IJCP Group

Moderator: Mr Saurabh Aggarwal

HCFI Round Table Expert Zoom Meeting on "Challenges in the Life of a Surgeon During the COVID Era"

Speaker: Prof Dr Ashok Gupta, *Reconstructive Plastic Surgeon, Bombay Hospital Institute of Medical Sciences, Mumbai*

March 12, 2022 (11 am-12 noon)

- The COVID pandemic has resulted in feelings of fear, anger and helplessness among surgeons. It has had an extensive effect on surgeons and patients requiring surgical care.
- It is essential to act thoughtfully and support the hospital surgical care system as well as to protect the benefits of the patients and at the same time conserving the hospital resources and protecting the hospital staff.
- Surgical care requires an interaction between the patient and the surgeon, which cannot be replaced by the telehealth system, which can be implemented effectively in many other specialties of medicine.
- The pandemic has posed several challenges. The financial effects of the surgical shutdown have been far-reaching. Many private surgical practices were forced to shut down or relocate as they could not withstand the financial challenges. Some surgeons have retired early or have left the surgical specialty. These problems influence the surgical workforce during a time when there is likely to be a greater need for surgical care.
- To adapt to a new normal, prepare for a rapidly changing situation, postpone elective operations immediately, develop dedicated operating suites, duration of the surgery, need for ICU care after surgery, need for ventilator during or after surgery, blood loss during surgery, number of surgeons and nurses needed in the OR and whether surgery is being performed in the lower risk group or higher risk group.
- The first fundamental for the surgeon is "is it worth the risk?"
- CovidSurg Collaborative, a global study published in October 2020 has shown that for every person who undergoes surgery during the pandemic, there is one in four chance that they will die and a 50/50 chance that they will suffer severe pulmonary complications. CovidSurg has expanded participation doubling the number of hospitals and tripling the number of countries. Seven hundred thirty-three hospitals across 73 countries and more than 24,000 patients were enrolled.
- Surgeons need guidance on how to deliver surgical services safely and effectively during COVID-19 pandemic. The aim was to identify the key domains that should be considered on developing pandemic preparedness for surgical services.
- Surgeons did not have any information about how COVID affects surgical patients.
- The current study tracked more than 1,100 patients who underwent surgery. About 75% had emergency surgeries and 25% had elective surgeries.
- *The Lancet* shows that patients testing positive for the virus 7 days before and up to 30 days after surgery are at high-risk.
- In a study in the publication "Surgeon voices in COVID-19 era", 1 in 4 patients infected with the virus before or after surgery died. One in every 2 patients contracted serious pulmonary complications such as pneumonia, acute respiratory distress syndrome (ARDS) or unexpected postoperative ventilation. The type of anesthesia used (general, regional, sedation or local) did not alter the outcome. This reminds us that COVID is not only a lung disease; it touches almost all other systems of the body. The biggest shock from this study is that the patient may survive the surgery, but still has a higher risk of developing serious complications or even death compared to before the pandemic.
- Impact of SARS-CoV-2 on postoperative pulmonary complications and mortality needs to be established to enable surgeons to make evidence-based decisions.
- The American College of Surgeons (ACS) has developed triage guidelines for COVID-19, which state that the hospitals and outpatient surgery centers should consider their patients' needs and logistics capability to fulfil in real time.
- The need for a procedure should be established by a surgeon with expertise in the relevant surgical

specialty to determine damages to be sustained by delay in undertaking the surgery.

- Feasibility of procedure be determined by administrative personnel accepting the hospital facility, safety and well-being.
- The risk to the patient should include an aggregate assessment of the real risk of proceeding and the real risk of delay.
- COVID-19 is a clear risk for all. Surgical procedures should be considered not based solely on COVID-associated risks but rather on an assimilation of all available medical and logistical information.
- COVID-19 free zones are a very vital recommended criteria to minimize risk of accidental exposure and must be established within the hospitals to protect patients, opting to undergo elective surgery during the pandemic.
- Hospitals should prepare detailed specific pandemic preparedness plans addressing the identified domains. Specific guidance should be updated continuously to reflect emerging evidence during the COVID pandemic.
- A backlog of procedures after the end of the pandemic is inevitable. Hospitals should plan to report effectively to ensure that patients for elective surgery have the best possible outcomes after the pandemic is over.
- The ACS's Elective Surgery Acuity Scale (ESAS) balances the needs of the patient or impact of a surgical procedure with available resources.
- Planning for resuming surgeries should take into account the perspectives of multiple stakeholders, including surgery, anesthesia, nursing and facility administration.
- Elective procedures should be delayed until the patient is no longer infectious and has recovered fully. The impact of SARS-CoV-2 on postoperative recovery must be understood to inform clinical decision making during and after COVID-19.
- An international, multicenter, cohort study at 235 hospitals in 24 countries reported 30-day high mortality and pulmonary complication rates in patients with preoperative/perioperative infection.
- The American Society of Plastic Surgeons reported that most members stopped performing elective surgeries for an average of 28.1 weeks in 2020 due to COVID-19. For more than 2 years, COVID-19 has largely confined people to their homes and has significantly impacted nearly every aspect of lives.
- Now injectable procedures like Botox, fillers continue to be the most sought-after treatments in 2020-21.
- Safety issues in the OR using N95 masks, face shields, eye protection and double layers of PPE are common practices but add to the hazard for performing long duration surgeries.
- Sometimes patients are so sick that the emergency surgery is performed in the ICU, which is not as sterile as the OR.
- Universal use of smoke evacuators to suction away the smoke plumes generated by electrocautery has been encouraged to minimize the risk of exposure to aerosolized tissue.
- Precautions should be taken for surgical cases of minimally invasive procedures that require the creation of pneumoperitoneum must be safely managed or avoided if possible.
- A patient is always informed about the risks before a surgery.
- Preoperative patients could test negative for COVID even though they are infected (incubation period 2-14 days or the test could be false negative).
- Patients may not be infected, but could contract the virus while at the hospital or within the 30 days postoperatively.
- No system is fool proof.
- Transportation to and from the rooms and the elevator, postoperative room can transmit infection.
- Patients should quarantine for 30 days and not have any contact with anyone even for a minor procedure.
- We have to understand the limitations cause by post-COVID recovery. The risk of pulmonary complications almost double if the surgery is for more than 4 hours.
- Interspecialty and multispecialty assessment of patients is required.
- Consent should be well documented before undertaking any procedure, particularly during the COVID era.
- The surgeon must carefully assess the risk-benefit ratio of a surgery.

Participants: Dr KK Kalra; Dr Ashok Gupta; Prof Arun Jamkar; Dr Anita Chakravarti; Ms Ira Gupta; Dr S Sharma

Moderator: Mr Saurabh Aggarwal