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REVIEW ARTICLE

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COVID-19: An Indian perspective

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Abstract

Lockdown, quarantine, self-isolation, personal protection equipment, and social distancing have become words of daily usage ever since the world health organization declared coronavirus disease 2019 (COVID-19) as a pandemic. The impact of COVID-19 extends over the medical field, economy, education, and politics. Though the knowledge of the virus is evolving, we are yet to find a solution. India, country with the second largest population, went into a phase of lockdown from 25th March 2020 to 31st May 2020. There was phased measure to "Unlock" starting from 1st June 2020. This has affected the clinical practice and training of the resident. The challenges faced during this unprecedented time are multifaceted which includes overcrowding, healthcare system, and educational background. Indian Association of Cardiovascular-Thoracic Surgeons kept continuing the educational program through a series of "Masterclass."

KEYWORDS

cardiac surgical procedure, cardiovascular research, clinical review, coronavirus, COVID-19, SARs-CoV-2

1 | INTRODUCTION

Lockdown, quarantine, self-isolation, personal protection equipment, and social distancing have become words of daily usage. Chimneys of large factories stop to eject smoke. Stock markets go crashing down. Gyms are considered unhealthy because of the crowd. Covering the face was considered essential. Handshakes changed to Namaste. Mecca and Vatican City are closed. Hospital reserve beds for future crisis. Dr. Ignaz Semmelweis' hand-wash was being reinforced. There is one link to all these events—coronavirus, coronavirus disease 2019 (COVID-19), and severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)—a 60–140 nm microbe. It is not an exaggeration to say that the symptoms, incubation period, natural history, or treatment of this virus is yet to be described to the fullest. China reported its first victim of COVID–19 on 11 January 2020. Two months later, the WHO declares COVID-19 as a pandemic (11 March 2020). Knowledge of this virus is evolving. World leaders, healthcare workers, and health organizations take all possible measures to close the gates for this deadly virus and keep it under control. The impact of this virus extends to the healthcare system, economy, education, and politics.

2 | INDIAN HEALTH SYSTEM: STATE OF THE NATION IS AS GOOD AS ITS HEALTH CARE

India is a vast country (2.4% of the world's surface area) with 1.4 billion populations accounting for 17.5% of the world population. In 2020, 65% of citizens live in rural India. Indian healthcare system is vast, but there remain many differences in quality between rural and urban areas as well as between public and private health care.[1] The public sector provides 18% of the total outpatient care, 44% of inpatient care. The private healthcare account for 58% of the hospitals in the country and are clustered in urban India. Seventy-four percent of the graduate doctors live in urban areas, serving 35% of the national population.[2] This makes many Indians turn towards private healthcare, although this is an option not easily accessible to the poor. Thought health insurance is available, it is often provided by employers, but most Indian lack health insurance. Few citizens are covered by the Government health schemes. This makes a large portion of people to spend from their pocket on medical treatment. Many Indian hospitals offer world-class quality health care at a fraction of the price of the hospital in developed countries.

3 | INDIA IN COVID

India entered the phase of lockdown on 24 March 2020 when the total number of cases was less than 606 with 10 deaths. The increase in the number of cases was exponential high to 33,000 and 1075 deaths on 30th April. As on 27th October, India ranks second in total cumulative cases and third in the total number of deaths.[1] On analysis the total number of cases per million, India ranks 89th (5772/million) and stands 86th in total death per million (87/million). Though the total number seems to increase, in the majority of the cities, where there was an initial peak of cases have slowly plateaued.[1,3]

The Indian Government left no stones unturned to be with the people during this global predicament. The phase of lockdown extended from 25th March 2020 to 31st May 2020. There was phased measure to "Unlock" starting from 1st June 2020. During the period of lockdown, people were ban to step out of their homes except for hospitals, pharmacies, banks, grocery, and other essential services. During the fourth phase of lockdown, the Union Ministry of Health gave the power to the individual state government to delineate the districts into three different zones—Red (hot zone), Orange, and Green. These zones were categorized based on the total number of cases, cases per lakh population, doubling rate over a 7-day period, case fatality rate, testing ratio, and sample positivity rate. These zones will have a different set of restrictions for the citizens—maximum for the red and the least for the green.

All educational, training, and research institution were suspended. There are steps being taken to integrate the private and public healthcare system. Few state governments have already undertaken certain private health care with the interest of the people. Separate COVID blocks are designated in the public health sectors. Efforts are being taken to convert railway coaches to beds in need of a dire emergency. The emergency military hospital has been established to handle patients with COVID-19 during an emergency. To handle the crisis, the government has converted stadiums, large auditoriums, convention centers, and colleges to "emergency care centres" to handle patients with COVID-19. Doctors, nurses, paramedics, technicians, and other healthcare professionals involved in the care of patients with COVID-19 will get a special insurance cover of Rs. 50 lakh ($65,000) during this period. India's average number of bed/1000 person is less than one. Hence, there have been efforts to increase the number during the crisis. Numerous education awareness programs were organized by celebrities through radio, television, and social media.

4 | COVID PATIENTS AND ECONOMY

At present COVID-19 positive patients are admitted in public sectors and a very limited number of private sectors. In October 2015, India's medical tourism sector was estimated to be worth US$3 billion. The industry could grow by 200% by 2020, hitting $9 billion, according to Ministry of Tourism figures. This is because treatment costs in India start at around one-tenth of the price of comparable treatment in the United States or the United Kingdom. A recent publication in the media suggests that several private hospitals in India have sustained revenue losses of up to 90% since March. The private hospitals which account for 58% of the country's hospital face a twin quagmire—these sectors try to beef-up additional manpower, equipment to ensure adequate preparedness for safety in the hospital, on the other hand there is a sharp drop in revenues in terms of international patients, outpatient, and elective surgeries. The flow of international patients may still be less for the next 3 months as well. The Indian government announced 20 trillion rupees ($266 billion) in support package in fiscal and monetary measures to support the economy.

5 | CARDIOVASCULAR UNIT IN COVID

The cardiovascular team always involve a lot of health workers involved in the team including the doctors, paramedical staffs, and the housekeeping. There are several ways COVID can affect the unit

1. *Intensive care beds and ventilator*: Complex vascular and cardiac cases may occupy intensive care unit beds for a longer time. This may curb the need for more beds and ventilators in the near future during the COVID era.
2. *Selection of cases*: It is difficult to draw a line between elective and urgent cases in cardiac surgery. A patient who can survive more than 4 weeks can be categorized as elective at the moment thought no guidelines define the same (Doug E. Wood, Chair of Surgery at the University of Washington). The American College of surgeons has proposed a COVID-19 guideline for triage of vascular surgery patients.[4] They have advised not to postpone acute aortic dissection, ruptured aneurysm, any symptomatic aneurysm or any aneurysm associated with infection. It has been recommended to postpone any asymptomatic aneurysm.
3. *Cardiovascular patients:* Complex cardiac and vascular patients are likely to have additional comorbidities. They may develop COVID-19 during the hospital stay or after surgery. A patient with COVID-19 may need an emergency cardiac or vascular procedure. A cardiovascular surgeon need to present when the situation of extracorporeal membrane oxygenation arises.
4. *Teamwork*: It necessitates a close working environment in a cardiovascular unit, which theoretically may increase the chance of infectious spread, hence advisable to reduce the staff members and follow all the necessary precautions.
5. *Blood and blood products:* Cardiac and vascular procedures invariably need the support of blood banks. There is a drought of donors which makes the operation of blood bank difficult.

6 | IMPACT OF COVID ON CARDIOVASCULAR PRACTICE IN INDIA

An online study was conducted by our team among the cardiac surgeons practicing in India.[5] It was noted that 27% of the surgeons

did not operate during the lockdown and nearly 90% of the surgeons stopped elective surgery before 31st March 2020. Just over 1/5th of the surgeons (22.2%) continued to perform elective surgeries during the period of lockdown. Nearly 90% of the surgeon agreed that there is a drop in more than 50% of the surgical volume during the period of lockdown. A few surgeons (12.1%) agreed that their "traditional" postsurgery intensive care unit was transformed into a COVID-unit. This was more common in the public sector.

7 | COVID'S IMPACT ON EDUCATION

Although the focus is on the patients and the community at large to treat and prevent the spread of the COVID-19 disease, it has undoubtedly rattled the educational and training program of the residents especially the surgical speciality. The residents have a stipulated training time limit before they appear for their certification exams. To ensure that this unprecedented time does not weight a negative effect on the minds of junior surgeons and residents, the Indian Association of Cardiovascular-Thoracic Surgeons began organizing a nonstop series of educational webinars for the educational, pedagogical, and conceptual benefit of residents. The program is an on-going process and has benefited the entire fraternity of cardiothoracic surgeons across the ranks, from professors, senior consultants to trainee-fellows, and aside residents. To befit the experience, this educational series was named "Masterclass" under the ambit of the Resident Academic Forum of the Indian Association of Cardiovascular-Thoracic Surgeons. This web-series has also benefited numerous other specialists which include cardiologists, radiologists, anesthesiologists, critical-care, and paramedical colleagues from nursing, perfusion, anesthesia technicians, and biomedical engineers. To ensure that the quality of education and concepts meted out is maintained to the highest standard, faculty who excel in their subspecialties (documented by peer respect, publications, experience, and interest for teaching) were invited to take part in the program. The program has been well-received by professions across the globe with 23 countries being part of the attendees. Three series on Lung and Heart-Lung Transplantation, Minimally Invasive Cardiac Surgery, and Boot camp in cardiac Anatomy have been part of this expedition. During the first 2 months of lockdown (3rd March 2020 and 31st May 2020), a total of 154 webinars were conducted (Adult-Cardiac Surgery: 50, Congenital Heart Surgery: 31, Thoracic Surgery: 44, and Multispecialty and Allied sciences: 29).

8 | PROTECTION FOR HEALTHCARE WORKERS

Worldwide "stay home" and "social distancing" is followed. But the medical profession are prepared to do the opposite. They risk going to hospital to take care of the patients infected with COVID-19. China's National Health Commission reported that more than 3300 healthcare workers have been infected as of early March. In Italy, 20% of the responding healthcare workers are infected.[6] More than 60 doctors have died in Italy. Spain has reported that 14.4% of the total reported cases are healthcare workers. A total of 1302 doctor and trainees were infected and 108 deaths have lost their lives as on 13th July 2020.[7,8] This gives a staggering 8% mortality rate among doctors as compared with 3%–4% in the general population. Three-quarter of death was among doctors who are more than 60 years of age. The cardiovascular unit team works in close proximity. There is every possibility to come in contact with all body fluids during the pre/per/postoperational period. It is essential that the head of the unit takes measure for staff management. It is advisable to have two teams of staff members so that when needed, quarantines can be applied to members within the team, rather than the entire unit. There are guidelines established for the personal protection equipment during the surgery by the apex societies. It is of paramount importance to adhere to them religiously. Doors of the operating room should be shut always, providing optimal negative pressure. All the contaminated equipment should be left in the operating room before leaving.

9 | CONCLUSION

Constant efforts are being made in research to find ways to conquer this pandemic. But as where we stand today, we are still in the process. "Prevention is better than cure"—there is no better words which can fit this pandemic. Until we find a way out—"Stay home. Stay safe."

CONFLICT OF INTERESTS

The authors declare that there are no conflict of interests.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are openly available at https://www.worldometers.info/demographics/india-demographics and https://ourworldindata.org/coronavirus.

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