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EDITORIAL

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Cardiovascular and Thoracic Surgeries can be Made Safe Even during Peak of Covid-19 Pandemic

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The Covid 19 pandemic has had devastating effects on healthcare globally and even worse impact on those having heart and other lifestyle diseases like diabetes, cancer, stress, and depression. Delay in treatment can aggravate the disease and worsen prognosis. Although several guidelines have been proposed, to ensure safety of managing Team and patient, so that only emergency surgeries are performed during Covid 19 peak, yet morbidity and mortality was found to be high during Covid pandemic [1]. However, Cardiovascular and Thoracic Surgery is a specialty wherein Surgeons are expected to remain on their toes round the clock, even during peak of the pandemic, despite strict lockdowns in order to prevent worsening of complications among patients requiring surgical interventions. Keeping this in mind we ensured constant availability of safe Cardiovascular and Thoracic surgery facilities to all patients who reached our hospital irrespective of the gravity of second Covid 19 peak.

Unfortunately, we have noticed a drastic worsening in the spectrum of patients coming to us for heart and lung surgeries during the recent Covid-19 second peak. Since most patients delayed their initial diagnosis and postponed elective procedures this led to a sudden surge of patients coming at odd hours to the hospital and with severe complications, with worsening of the disease by the time they reached the hospital, requiring high risk procedures.

As per my personal experience of patient management during the recent second peak of Covid-19, among the 31 patients who had off pump bypass surgery, six patients had severely reduced pumping of the heart with the left ventricular ejection fraction (LVEF) at as less as 20% (normal is 55-60%), 14 had LVEF around 30% and five patients presented with post Covid heart attacks prior to the surgery. All of them had a Covid RT- PCR negative at the time of operation. All had an uneventful recovery and were discharged within three to five days after surgery without any mortality. During the same period, 11 Video Assisted Thoracic Surgeries (VATS) were performed, and among these,four patients had post Covid complications requiring surgical intervention.

VATS Decortication, which is a procedure involving the surgical removal of a thick, inelastic pleural peel on lungs, that can restrict lung expansion, was done in four, while two underwent VATS bullectomy for removal of a dilated air space in the lung. Two patients had segmental resection, removal of a part of the left lung for black fungus along with repair of the large cavity communicating with left lower lobe bronchus (airways) in one of them. All of these patients also had uneventful recovery without any mortality.

Two patients had advanced malignancy at the time of presentation (one was diagnosed to have spindle cell sarcoma on VATS biopsy that was infiltrating surrounding heart, blood vessels and spinal vertebra while the other presented with large lung cavity filled with pus and was diagnosed with poorly differentiated squamous cell cancer after VATS removal of right lower lobe along with that was also found to have extensive bone metastasis). In both of these patients, complete removal of tumour was not possible by the time they reached us and the reason for delayed presentation was Covid -19 infection therefore they were referred for adjuvant chemotherapy which is basically additional cancer treatment, given after the primary treatment, to lower the risk of the cancer coming back. This can includes procedures like chemotherapy, radiation therapy, hormone therapy or targeted therapy.

All patients who came to us during this Covid peak had their rapid antigen test done prior to admission and if tested negative were admitted to our intensive care unit for further management. However, Covid RT PCR was also tested in all patients and if negative only then patients were taken up for surgery otherwise positive patients were shifted to Covid unit for further management and advised to defer surgery by at least four weeks or two weeks after testing negative after successful treatment of Covid 19 infection. Our Cardiovascular and thoracic intensive care unit, Cardiac care unit, cath lab and operation rooms are all located at one floor which is entirely dedicated to Cardiovascular and Thoracic surgery as well as Cardiology services. All safety precautions were taken at all times to reduce the risk of exposure to Covid 19 for the entire Team as well as all patients and their attendants. It was because of the strict precautions and care that none of our patients got infected by Covid 19 during their admission once

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they tested negative on admission even during severe peak of Covid 19 pandemic. All the patients had a short hospital stay and there was no mortality despite patients undergoing very high risk procedures with multiple comorbidities during this period. We can classify the spectrum of patients that we treated to during this Covid peak into following categories:

• First category of patients includes those who had or did not have any underlying heart or lung disease and develope cardiothoracic complications directly due to Covid-19 infection. which included severe inflammation affecting lungs, heart (myocarditis) as well as clotting of blood within blood vessels causing heart attacks, pulmonary embolisms (clots blocking blood supply to lungs) or strokes due to blockages of blood supply to brain. Many of them require surgical interventions like bypass surgery or embolectomy [2]. Various markers like Troponin - I, Betanitriuretic peptide (BNP), CRP and D-Dimer can help in early detection of those patients who are at higher risk of developing complications and lead to timely interventions that can save several lives.

Some patients develop pneumothorax, or pneumomediastinum (trapping of air around lungs or heart) due to leakage of air from airways and some have severe destruction of lungs leading to respiratory failure and may require lung resection [3]. Some of them also require extra corporeal membrane oxygenator (ECMO) support and those with irreversible changes become candidates for lung transplant [4, 5]. Some patients develop fungal infection especially those having Diabetes mellitus on high dose of steroids [6].

• Another group of patients need heart or lung surgery, but they were detected to have Covid-19 and while being treated for Covid their heart/ lung complications worsen drastically. By the time they actually come for surgery their disease progresses and their operative risk worsens considerably.

• A third category includes those patients who have underlying heart or lung disease but delay treatment due to lockdown and do not reach for timely treatment. They land up with serious complications due to worsening of their heart or lung disease, to the extent that they require major risk surgical intervention.

• Fourth category are those patients who had got surgical interventions like bypass surgery/ valve surgery in the past and now developed severe Covid-19. As the volume of these patients was huge and most of them could not get admission in appropriate Covid hospitals due to high volume of infected patients, they had to be mostly managed at home or at centres with less appropriate facilities by telephonic or video consultations. This includes one of my patients who was 99 years old but recovered well within two weeks.

Although Covid 19 has imposed challenges beyond imagination for healthcare professionals across the globe, cardiovascular and thoracic surgeons must learn to face these challenges and rapidly evolve their functioning to meet the crisis. They also need to remain determined to face all eventualities by evolving their skill sets intelligently. Most complications can be avoided if the patients reach hospitals on time and appropriate interventions are done well in time .However strict precautions need to be taken at all times to make hospital stay and surgical interventions safe and to restrict the risk of exposure to Covid 19 infection to negligible levels.

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