
Cardiac Care and COVID19 - Important Questions Answered



Maddalena Lettino of San Gerardo Hospital, Monza (Italy) answers some important questions regarding cardiology patients, cardiac care and COVID-19 in the new series of podcasts by the European Society of Cardiology (ESC).

What have we learned from this experience? And what is the situation of the acute cardiology patient in this pandemic situation?

Dr. Lettino says that cardiology patients are not so many in these times because most of the patients arriving at the hospital are patients with infectious disease and probably cardiology patients are staying at home, waiting until they have much more severe symptoms to go to the hospital. The number of beds dedicated to COVID-19 infected patients are definitely much more than the number of beds dedicated to cardiology patients. She explained that in Italy, they had to change the organisation of the cardiovascular emergency network because they couldn't have so many people from the cardiology department available for the current patients as most of the intensivists and doctors were dedicated to COVID-19 patients.

She also explained that keeping in mind the model of hub-and-spoke, they have several hubs in northern Italy in particular. These hubs receive patients from many more spokes than before and are still trying to maintain intensive care beds for them. Hence, the total number of intensive care beds available for cardiology patients are much less, but in this way, it's much easier to organise the transportation of patients.

What is the incidence of ST elevation or ACS in ventilated COVID19 patients and how should they be managed?

According to Dr. Lettino, when the patients are in the general ward, they are mainly non-invasively ventilated and the EKG monitoring is very low and these patients usually are much more affected by respiratory symptoms than by any other kind of symptoms. Therefore, these patients have no far not required the attention of cardiologists. However, when these patients are in the intensive care units and mechanically ventilated, and if their condition gets worse and the severe respiratory failure becomes more evident, the development of multi-organ failure is a natural consequence. They could have also some changes in the EKG, or some alterations of troponin, But according to Dr. Lettino, so far they haven't had acute coronary syndromes in these patients or at least, this has not been brought to their attention. Hence, it's difficult to see what is the mortality of infected cardiovascular disease patients, but for sure, cardiovascular disease patients have a worse outcome. Mortality is much higher in cardiovascular disease patients than in patients without any cardiovascular disease. Mortality is even higher in cardiovascular disease patients compared with hypertensive patients who have higher mortality compared with patients who without any risk factors. Dr. Lettino explained that if they had to grade patients, it would be: patients with no risk factors= lower mortality, patients with some risk factors=higher mortality and patients with cardiovascular disease=the highest mortality.

Do COVID-19 patients have a higher incidence of myocarditis, arrhythmias or acute heart failure?

Dr. Lettino explained that at the moment, there is not much information related to myocarditis and COVID-19. She pointed out that this is an infectious disease mainly characterised by interstitial pneumonia. And what they see in terms of alterations of troponins is much more related to ischaemic situation secondary to the hypoxia for the respiratory failure. It's thus difficult to see patients really developing a situation that is much more related to myocarditis than to respiratory failure. They haven't see arrhythmias or conduction disturbances more than in the common situations, and this could be considered a direct sign of myocarditis, but that has so far not been observed. But she did explain that in the very advanced stage of the infectious disease, heart failure is almost always associated with respiratory failure and it's really difficult to interpret the CT scan or the chest organogram where the images are quite similar.

Compared to the pre-COVID era, has there been any change in the number of STEMI and NSTEMI patients admitted to the ER/cath lab?

According to Dr. Lettino, cardiologists have seen, a lower number of patients with acute coronary syndrome arriving to the hospital. The number of STEMI is much higher than the number of NSTEMI. And this is completely unusual. She said that they were used to seeing many more non-ST elevations arriving to the emergency room or directly to the cardiology department. This was mainly due to the fact that patients were able to recognise their chest pain and arrive at the hospital as soon as possible. But in the COVID19 era, patients who do not have any sign of infectious disease tend to stay at home. Therefore, the number of non-ST elevation is much lower. The number of ST elevation of course is relatively higher, but still the total number of patients arriving is lower. And this in some way is well matched with a lower number of hubs that are active in Italy.

The most difficult thing is that many patients with COVID19 infections are arriving at the hospital complaining of chest pain because chest pain is related to the upper respiratory airways. Hence, sometimes cardiologists are called in to the ER to deal with these patient and to try to recognise whether their problem is cardiologic, or they have a very early stage of the disease.

The challenge of this time is that there are so many doctors devoted to the care of COVID patients already admitted to the hospital. There are new professionals and young doctors helping out in the emergency room; sometimes there are only surgeons or only young doctors. Because of the high number of cases, there is very little time. Hence, doctors in Italy are trying to find the pathway that will allow them to identify whether a patient has the COVID19 infection or not and they are trying to select the patients that are clean and without the infection and put them in the cardiology ward as they wait for their second point of troponin or for any other tests. This is necessary in order to maintain these patients separate from the patients who arrived with an infection.

Should we screen all patients requiring coronary angiography or entering the ICCU for SARS-CoV-2?

For patients brought by the ambulances, and when it's not possible to ascertain that the patient didn't have any respiratory problems or did not have any fever, or did not have any relatives affected by the disease, it's much better to consider them as positive patients. It's easier to put the patients in the cath lab and deal with the patients as if they are COVID19 positive, or bring the patients to the isolated beds within the ICU. It is the best way not to diffuse the infection and to protect the doctors who are doing the procedures.

Should we protect all the doctors dealing with these patients as the patients are always infected?

Yes, all the doctors who are receiving these patients for the first time must dress themselves as if they are dealing with patients with a COVID infection. The staff present in the cath lab should be duplicated, because some of the professionals will stay close to the patients and so they have to be particularly protected, but at the same time, they have to exchange tools and materials with other healthcare professionals who are not directly in contact with the patient. Therefore, it's particularly important to make some arrangement in the cath labs and some arrangement in the ICU. For example, the ICU does not always have a negative pressure for the ventilation inside the wards. Dr. Lettino said that this is one of the first things they have done in Italy to create the condition to be able to isolate some beds or some boxes or some rooms in order not to diffuse the infection towards the other patients, when the general ICU is completely full of patients affected by COVID19.

What are the main take home messages?

The worst complication of this virus infection is pneumonia and acute respiratory failure. So far, doctors haven't seen many cardiovascular complications. Usually they are only the last effect of the initial infections, but still, patients with pre-existing cardiovascular disease, or sometimes patients having only some of the main risk factors for cardiovascular disease, have the highest mortality. Under the current circumstances, STEMI and NSTEMI patients are arriving at the hospital much later than before and frequently develop PCI complications, heart failure or cardiogenic shock.

Dr. Lettino suggests to treat every acute patient coming to the cath lab as likely COVID19 positive. Try to maintain the ICU as clean as possible and have at least a few isolated beds for positive patients. If possible, create a dedicated COVID19 facility separate from the ICU. There should be a sufficient number of cardiologists deployed to perform urgent procedures and to ensure that these patients have the shortest possible in-hospital stay. Finally, cardiologists are also helping out as the country deals with COVID patients, and these cardiologists and all the other doctors who are not used to dealing with infected patients should be well trained to protect themselves.

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