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Management of COVID-19 in Italy

Giuseppe Galati is a consultant cardiologist at San Raffaele Hospital in Milan, Italy. His specialties include chronic heart failure, cardiac magnetic resonance, echocardiography, myocardial disease, public health and health economics. HealthManagement.org spoke to Dr. Galati about the management of COVID-19 in Italy.

Do you think your country used a good strategy to contain the virus? Have any other countries implemented measures that you think have worked well?

We can divide the results of the management of this pandemic in three big categories. One is the availability of ICU places in the most difficult time when you have the tsunami of COVID-19. The second area is the availability, and access of PPE for the healthcare professionals and the third area is the availability and distribution of the test for COVID-19. If I evaluate my country in these three main fields, I have to say that we did a great job with respect to the availability of ICU places. When this pandemic started in Italy before the 21st of February, we had, for example, in Lombardy, which was the red zone where we still have more cases compared to the rest of Italy, we had only 720 places of ICU before the crisis, and in two weeks, we were able to more than double this number, and before the 13th of March, we had 1400 ICU places. This is published in a paper in [JAMA](#) (Grasselli et al. 2020). Italy implemented an effective protocol in Lombardy as to how to manage the emergency, how to create a triage zone, how to pre-screen, how to use PPE, how to ventilate, and how to put people in the intensive care unit.

The first point is extremely important because, without the availability of the ICU places, the number of people who died from this disease in Italy would have been three or four times higher. The second and third areas have some similarities because the management was suboptimal. Unfortunately, this was because a lot of Italian people and also physicians at the beginning of the crisis in Italy considered this virus similar to the influenza virus,

and they overlooked the seriousness of it. I don't give any fault to them because these physicians and experts based their decisions on data coming from China. I'm talking about the weeks that went from the 21st of February to the 28th-29th of February. We now know that the data from China was not reliable. The Chinese have corrected their data about the number of people who died and the number of people who were really infected from the virus. Therefore, in the beginning, this wasn't considered deadly and was treated like influenza. This made us overlook this disease during the first week.

It is also important to highlight the suboptimal management by the World Health Organization (WHO), who, till the end of February, recommended that surgical masks would be sufficient for healthcare professionals. Unfortunately, we now know that the surgical mask for healthcare professionals, in particular, when you perform invasive procedures like intubation, does not offer sufficient protection as this mask does not have any filtration capability. It only protects you from droplets and no more. Hence, this was very suboptimal for healthcare professionals and was also a major reason why many healthcare professionals in Italy died from this disease in the first week. After one week, we realised that we needed the FP2 and FP3 (also called N95 masks in North America) as these masks have more discretion capability. Unfortunately, we did not have the availability of the right PPE in the first few weeks, and the right PPE became available more or less in the second week of March, and progressively they improved. The full head-to-toe coverage became available mid-March.

If we talk about the test for coronavirus in Italy, it was made available from the 21st of February to the

29th and the first week of March to all people who were symptomatic and to all healthcare professionals and other people who had contact with the person that was confirmed as COVID-19 positive but also those who were asymptomatic. Even here, I would like to highlight that the WHO made a significant intervention in our country and Europe and claimed that this was not the best practice and that we should only test those who were symptomatic, and even now, we are doing the test only in symptomatic patients. This is probably not the optimal management situation because we need to identify the contacts, and we need these tests for healthcare professionals and for people who were in contact with those infected as this can give us the power to put these people in quarantine. This is a very critical point, as many of our healthcare professionals died from coronavirus - more than 128 physicians (as of April 16, 2020). This is a very dramatic number. Therefore, when I consider my country, I have to say that the management, considering

do in a democratic country. You can't kill people if they go outside the home. I think Italy was the real pioneer in this disease and serves as a model for other countries in terms of the good things that we did and the mistakes that we made. We now see the same pattern in other countries.

We know that this disease affects the lungs. In your opinion, could other organs and systems be affected?

After more than two months of this pandemic, we now have more evidence that this virus can also affect other organs. For example, we have seen some cases of myocarditis in which the myocardium was involved. We have also seen the ability of this virus to provoke and to stimulate thromboembolic events. Since the first week of March, we started to use enoxaparin to give anticoagulation because we saw a lot of thromboembolic events. Hence, other systems can be affected, in particular, the

In the beginning, this wasn't considered a deadly disease because of data coming from China, and it was compared to influenza virus

all areas and problems that we faced, was good. I believe we were the pioneer in the Western world with respect to the management of the coronavirus outbreak.

You asked me also if there were other countries that had a better strategy of management compared to Italy. I have seen a lot of comparisons between Italy and South Korea. This is not a proper comparison because, yes, South Korea is a democratic country, and yes, they applied a very good strategy in tracing people. But our culture and our habits are very different from both the Western and the Eastern world. It's very difficult to use an application to map and to track people at every moment of the day, every time and everywhere. In our country, this is considered a violation of privacy. In Lombardy, they have started using an application to track and trace people, but it is important to remember that in the European Union, this can be done only on a voluntary basis. We cannot track people without their consent. Therefore, the South Korea model is very difficult to apply in the Western world because we are a very different country with a different political system. In Italy, Europe, and the USA, we can advise and suggest, but we cannot oblige people to stay at home. We have also taken strong and effective measures in some Italian cities. We deployed the police and even the army for controlling people, but this is the maximum that we can

cardiovascular system. There has also been some acute coronary syndrome and alteration of the endocrine and the metabolic part in particular, and there was an alteration of the lipids and glucose metabolism. So the answer is yes, there are different organs and systems that could be affected by this virus.

Patients with comorbidities are dying more than those without. Patients with cardiovascular disease, in particular, have shown higher mortality. What is the scientific evidence? What is the interplay between COVID-19 and cardiovascular diseases (new complications or aggravations)? How can we manage cardiac involvement?

In Italy, we have had high mortality with this disease, and this is related to the fact that we do not have the real number of people who were affected. Also, Italy is second only to Spain in terms of people with comorbidities and the mean age of people. As per the data from the Ministry of Health in Italy, the mean age of people who died in Italy is 79 years, and the median age is 80 years. 66% of the people who died were men, and 34% were female. We don't know why the men died more than the females. When we talk about comorbidities, 61.5% had three or more comorbidities, 20.7% had two or more comorbidities, and 14.5% had one or more comorbidities.



Only 3% had no comorbidities. Hence, there are a lot of comorbidities, in particular, heart failure. Heart failure has a five-year mortality of 50%, and heart failure patients are aware that we have artificially prolonged their life using pharmacological and non-pharmacological treatments. When you put a disease like COVID-19 over a disease like heart failure in old patients, unfortunately, in the vast majority of cases, this will result in death, because these are two very deadly diseases. There is a crosstalk between the lungs and the heart in a vicious cycle that brings death to these people. If you expand

nor in Milan. However, I spoke with the Director of Cardiology in Bergamo, which probably saw the darkest face of COVID-19, and they had a waiting list for intubating people and only in Bergamo there were some old people who were prevented from being intubated, but it was an emergency situation there. In the rest of Italy and also here in Milan, there was never a waiting list for intubating people, and we never prevented people from being intubated based on the chances of survival or their age. I think we were luckier than the people in Bergamo. As for the ventilator issue, there were some concerns in the

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your view with other comorbidities such as COPD, chronic kidney disease, cancer or any other disease that affects the immune system, there is scientific evidence that this virus, when affecting people that have comorbidities, results in death. Also, consider that this virus can kill younger people, and at the beginning, we didn't know this.

You asked me about the interplay between COVID-19 and cardiovascular disease. You have to consider two scenarios. In people who have had no previous heart disease, COVID-19 is able to generate a new cardiovascular disease, such as myocarditis or pulmonary thromboembolism, if you don't give anticoagulation prophylaxis or in some cases, although not frequent, acute coronary syndrome. Patients with existing cardiovascular disease such as those with heart failure or coronary artery disease, have the highest probability to die because there is an interplay of pneumonia caused by COVID-19 and heart failure. For example, if you have left heart failure and you also have pneumonia, you can have biventricular heart failure or a worsening of previous heart failure. Hence, there is an important crosstalk between organs and systems during COVID-19.

Resource allocation is a controversial issue. How about the problem of ICU places' availability, and how about the shortage of mechanical ventilators? Do we have any evidence that old people were prevented from access to ICU places or to invasive mechanical ventilation? Do you think that chance of survival had a role in resource allocation?

Throughout this pandemic, Italy has given a very flexible response. We increased ICU places from the start, and there was never a saturation in Italy or in Lombardy,

first half of March, because we had no help from the rest of the European Union, but luckily, Italy is a very friendly country, and we are well respected and have good international relationships. We received a lot of aid from China, Russia, and the USA. We also have excellent physicians and an important internal industry. We converted some of these industries to produce ventilators; for example, Ferrari is helping to produce ventilators.

Different treatments are being applied. What is your personal experience, and what is the scientific evidence?

There is a recent publication in [JAMA](#) (Sanders et al. 2020) that provides a review of all the treatments that have been tried in different countries across the globe. Unfortunately, for any scientific evidence about treatment, we have to wait weeks or months before we can see some results. We have case reports, and several clinical trials have been approved by the European Medical Agency, the FDA and the Italian Health Agency. They have tried different drugs like Lopinavir/Ritonavir, but the results have not been effective. There is a trial with Tocilizumab directed against the Interleukin-6 to block and stop the inflammatory storm. Then there is hydroxychloroquine, but we don't have any trials about this. The use of this drug from home has resulted in some deaths because hydroxychloroquine, when taken at home, can be risky because there is no monitoring of an electrocardiogram. The drug can prolong the QT interval and generate ventricular arrhythmia that can lead to death. This happened in some countries in the world. Other drugs that are being tested are drugs that block the fusion of coronavirus with the other cells, for example, Umifenovir. Hence, there are several drugs that are being tested, but up till now, we don't have any scientific evidence of

benefit. We probably have to wait. The final stop of coronavirus will be given only by a vaccine, and that will probably be available in 2021.

Do you think the spread across the globe could have been curtailed? Earlier and wider use of testing could have had a role in this?

From the beginning, we didn't receive reliable and prompt information from the original country in which the virus spread ie China. The virus entered Italy and Europe in a very silent way. It is the opinion of our physicians and scientists that the virus probably arrived here in the middle of January. At that time, China did not release the correct data nor the fatality of the virus. Also, Italy and the USA were overly criticised because they were the first countries that blocked flights from China. We were criticised for being racists, but that was not the case. This measure was undertaken for the health of the people, but it was already too late because the virus had already spread in Europe and in Italy from the middle of January. You can say we could have prevented it but only if other countries had been as honest as Italy. Another reason why it spread globally was that at the end of February-early March, Italy launched an alarm telling other countries to beware. This was a deadly virus and extremely contagious. The data of China probably are not reliable. This was the message to all other European countries and countries in North America and South America, but this was not understood. Even in the first week of March, the Spanish government claimed that they did not have coronavirus, and they continued to play soccer matches. Similarly, in France, they celebrated Women's Day on the 8th of March in a square in Paris, and it was full of people. Nobody understood. The UK was still relying on herd immunity until their Prime Minister was admitted to the ICU. Hence, in the beginning, it was not understood that this was a very contagious and deadly disease.

How important is physical distancing? Can it play an important role in stopping the transmission?

Yes, social distancing is working because it gave us the opportunity to flatten the curve. In the case of Italy, it gave us a gap between the ICU place availability and the total number of cases. This way we never achieved the saturation of the system. For example, Spain applied late social distancing in Madrid, and they had a problem with ICU places. Therefore, the later you apply social distancing, the higher is the peak of the pool, and you have the risk of achieving saturation of your healthcare system. In Italy, social distancing has worked very well. The majority of Italian people, 90 to 95%, followed social distancing guidelines.

What was the lesson from this pandemic to healthcare management and, in particular, to your national healthcare system?

I have to say that COVID-19 gave a hard lesson to our health care system. We were completely unprepared. We were structurally unprepared. Over the last 15 years, there have been progressive cuts of healthcare in Italy – cuts in hospital places and cuts in the number of physicians and nurses. Coronavirus put in the spotlight this problem because it showed that we have no place to put the people with COVID-19, and we had to find space in one or two weeks. If we had not done this, the number of people who died would be three or four times higher. Next time, we need to be prepared, and we need to invest in healthcare and invest more in hospitals and ICUs. We also have to improve the salaries of our healthcare professionals. Many of our physicians have left Italy because they are not compensated properly compared to other countries. We have to improve the quality of life of healthcare professionals if we want a better healthcare management system. In Milan, we have created a COVID-19 centre with 200 spaces, which can help us in case of a second wave. We will probably not have a vaccine if this virus comes back in October or November, and we will need more defined treatment, better testing, and more effective quarantine measures. People will have to use masks whenever they go out, and there will be more effective social distancing. But the important thing is that if you don't put your attention or focus on the healthcare system, you will not save lives. The health of the people should always be the first priority. ■

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