

The ESC Patient Forum has received many questions about the Corona Virus (COVID-19). These questions and answers intend to pool together useful recommendations from international authorities and medical societies that are available at this point in time (publication date/last updated: March 26th, 2020).

Any questions you might have related to your own treatment should be directed to your physicians.

What heart patients should know about the Coronavirus (COVID-19)

COVID-19 & heart conditions

I have a heart condition. Am I at more risk of getting COVID-19 than somebody who doesn't have a heart condition?

No - the infection can be caught by anyone. However, people with underlying heart conditions might be more likely to show symptoms of the infection or to have a more severe infection than others.¹

So far, most people that get COVID-19 have a mild viral illness including sore throat, cough and aches and pains and a fever, but some people (up to 5%) develop a chest infection/pneumonia. We are not yet certain if people with heart conditions are more likely to get a chest infection with COVID-19, but it is likely since they do get chest infections with other viruses like the flu.¹

Is the risk of developing severe COVID-19 symptoms similar for all patients with a heart condition or are there differences?

The basis of contracting the infection is the same for all individuals. The virus is transmitted via droplets in the air from an infected person coughing, sneezing or talking; or through touching contaminated surfaces as the virus can survive for several hours or even days on surfaces such as tables and door handles.¹

Once the virus enters the body it causes direct damage to the lungs and triggers an inflammatory response which places stress on the cardiovascular system in two ways. Firstly, by infecting the lungs the blood oxygen levels drop and secondly, the inflammatory effects of the virus itself cause the blood pressure to drop as well. In such cases the heart must beat faster and harder to supply oxygen to major organs.

Particularly at risk are the following groups:

- Individuals who are immunosuppressed, such as transplant patients, patients with cancer who are receiving chemotherapy or extensive radiotherapy, patients with concomitant leukaemia or lymphoma who have heart disease are theoretically at greatest risk of contracting and succumbing to the effects of the virus.³
- Other high-risk groups include elderly and frail people as well as pregnant women with concomitant cardiovascular disease.³
- Individuals with heart conditions, such as heart failure, dilated cardiomyopathy, advanced forms of arrhythmogenic right ventricular cardiomyopathy and patients with congenital cyanotic heart disease are at highest risk.
- Patients with the obstructive form of hypertrophic cardiomyopathy may also be placed in the same high-risk category.

There is no evidence that the virus infects implanted devices such as pacemakers and cardioverter defibrillators or causes infective endocarditis in those with valvular heart disease.

I have Brugada Syndrome, are there any special precautions I must take?

Patients with Brugada Syndrome are particularly vulnerable to fatal arrhythmias in situations where the body temperature exceeds 39°C. Such patients must treat fever aggressively with paracetamol and cool/tepid sponging.

I have read that the Coronavirus can cause heart problems such as heart attack or arrhythmias, is this true?

- Based on the inflammatory effects of the virus, there are theoretical risks that the viral infection could cause rupture of atherosclerotic plaques (fatty deposits) in the coronary arteries, leading to acute coronary syndromes (heart attack). Individuals who experience severe chest discomfort during symptoms of Corona virus should call the health care advice team immediately.
- Severe systemic inflammatory conditions may aggravate arrhythmias or even trigger atrial fibrillation in some individuals.
- The acute inflammation caused by the virus infection can worsen both cardiac and kidney function

However, there is nothing you can do to prevent these problems. You should strictly follow the recommendations to prevent becoming infected such as personal distancing or even better, self isolation, frequent hand washing, etc.

Are cardiac patients who also have diabetes and/or hypertension at greater risk?

Data from China, where the disease emerged, indicate that a significant proportion of non-survivors and those who developed severe disease had comorbidities such as diabetes and hypertension. The exact reason for this remains unclear. It is likely both hypertension and diabetes are prevalent in the general population particularly in the age group (over 70 years) where the mortality from COVID-19 infection is highest.

There has been an article linking this observation to the use of Angiotensin converting enzyme (ACE) inhibitors and angiotensin II receptor blockers (A2RB/ARB) which are common medications used to treat high blood pressure.⁷ It is important to emphasise that this is a theory which has yet to be substantiated by evidence. Major health organisations such as the European Society of Cardiology, British Cardiac Society and the American Heart Association recommend continuing these medications (since their beneficial effects are well known) whilst monitoring the disease progress of patients with hypertension and diabetes.^{8,9}

There are reports that COVID-19 may induce myocarditis or pericarditis. If you have had myocarditis/pericarditis previously, are you more vulnerable to contracting it a second time?

There is no evidence that an individual who has suffered from myocarditis or pericarditis in the past is at higher risk of developing the same complication with COVID-19. It is recognised that some cases of myocarditis have a relapsing and remitting course. To date there is no evidence that the virus responsible for COVID-19 directly infects the heart; however, the acute inflammatory response caused by the infection may worsen cardiac function and exacerbate symptoms in patients with heart failure.

Are people with heart disease more likely to die of COVID-19 than those without?

So far, older age and the presence of underlying conditions - including heart conditions - have been risk factors for death. Nevertheless, it is important to emphasise that most patients, even those with underlying heart disease, have had mild infections and have fully recovered.

The news says that the worst affected by COVID-19 are the older age population and people with pre-existing conditions. Are 'people with pre-existing conditions' also older or does this refer to people of any age?

Most people dying from COVID-19, in the reports from China and other countries, have been aged over 70 years and have had advanced heart and lung conditions. Nevertheless, the majority of older people and people with pre-existing conditions have had a mild viral illness and have fully recovered.

I know that I should not go to the hospital if I think I am infected, but when should I seek medical attention if I have a pre-existing heart condition?

If you think you have COVID-19 infection, ask yourself if you can manage the symptoms at home. Fever can be managed with paracetamol. **Important: If you feel uncomfortable managing the symptoms at home, particularly if you feel shortness of breath, please seek medical help.**

There are news reports, especially on social media, suggesting that medications such as ibuprofen (so called non-steroidal anti-inflammatory medicines or NSAIDs) used to lower fever and treat pain could worsen COVID-19. Based on currently available information, the World Health Organization (WHO) and the European Medicines Agency (EMA) do not recommend against the use of ibuprofen as there is, at the moment, no scientific evidence establishing a link between ibuprofen and worsening of COVID 19.⁴ If in doubt, please ask your physician which medication is safe for you to take to treat fever and/or pain.

Important: However, it is very important that you do not neglect symptoms of heart disease, should you experience them during the COVID-19 pandemic. If you experience worsening chest pain during exercise or chest pain at rest, if you feel shortness of breath, palpitations, or if you experience fainting, you must call your emergency services provider who will make an assessment based on your symptoms and general examination before making a decision to transfer you to hospital.

Protection

Are there any additional measures that I should take to limit my risk of getting sick, as I have a heart condition?

Follow the advice from your country's health authorities - this will be slightly different in each country depending on how many cases there are in your country.

There are things that everyone should do to limit their risk. If you have a heart condition, the following are important:

- Avoid people who are sick.
- Keep a two metres distance from other individuals whenever possible.
- Wash hands thoroughly with soap and warm water for at least 20 seconds.
- Cover your mouth with a tissue when you cough or cough into the inside of your elbow.
- Cover your nose with a tissue when you sneeze or use the inside of your elbow.
- Avoid touching your eyes, nose and mouth.
- Clean often touched surfaces like doorknobs, handles, steering wheels, or light switches, with a disinfectant to remove the virus.

Should I consider self-isolating to avoid catching the virus?

Self-isolating means staying at home as much as possible and avoiding contact with others.¹⁰ The advice on self-isolation is different in different countries but the following are sensible steps that apply to all countries in Europe:

- If you have symptoms of fever (a temperature of 37.8°C or above), cough or a chest infection you should self-isolate.

- If you do not have symptoms, avoid contact with anyone who is sick, even if they “just have a mild cold”.
- Stay at home as much as possible, including working from home if this is feasible.
- In some countries you may be asked to follow a stricter isolation (such as is the case with Italy, France, Spain, Belgium).

I had the flu and pneumococcal vaccine this year, am I protected from this virus?

No. Vaccines against pneumonia, such as pneumococcal vaccine, and flu vaccine, do not provide protection against the new coronavirus.

The virus is so new and different that it needs its own vaccine. Researchers are trying to develop a vaccine against the Coronavirus, but it is unclear when this will become available.

Although the flu and pneumococcal vaccines are not effective against COVID-19, vaccination against respiratory illnesses is highly recommended by major health organizations such as the World Health Organization (WHO) to protect your health.

Should I wear a mask to protect myself from the virus?

For the general population wearing a mask is only recommended if you are experiencing symptoms, such as a cough or a fever, or if you are caring for someone with these symptoms.

Wearing a mask if you have a heart condition is not recommended as this may make breathing more difficult. If you have a heart condition and are concerned about catching COVID-19, discuss this with your doctor.

To prevent shortages of face masks it is important to only use them if needed. When wearing a mask, it is important to use and dispose of them in the correct way. The World Health Organization (WHO) has useful information about this.¹¹

Can I catch COVID-19 from my pet?

There is currently no evidence that humans can catch the disease from common household animals such as cats and dogs.

Can people catch COVID-19 more than once?

The current research suggests that immunity to COVID-19 develops after the first infection, so it is not possible to catch it again. There are examples of viruses, like flu and the common cold, which can be caught more than once because of the way the virus changes over time. We won't know for a while whether this can happen with COVID-19.

Medication

Should I change any of my heart medication doses?

What is clear is that stopping or changing your medication could be very dangerous and could make your condition worse. These drugs are very effective for heart failure, and to control high blood pressure to help prevent a heart attack or stroke, and so on. Any changes to your treatment that have not been recommended by a healthcare professional could put you at higher risk of a flare-up of your heart condition.

There have been reports in the media suggesting that some commonly used drugs to treat high blood pressure (so called ACE-Inhibitors and Angiotensin Receptor Blockers) may increase both the risk of infection and the severity of an infection with the Coronavirus. However, this warning does not have a sound scientific basis or evidence to support it. Therefore, it is strongly recommended that you continue to take your blood pressure medication as prescribed⁸

Patients who are on immune compromising medications, for instance after a heart transplant, should continue to take these medications as prescribed. Reducing the doses is associated with a high risk of suffering a rejection of the transplanted heart.

Please take all your medications exactly as prescribed. If in doubt, please contact your doctor or nurse but do not make any changes before having spoken to them.

Should I be worried about medication shortages?

Everything is being done to ensure that the supplies of essential medications are maintained. There is no cause for concern. The European Medicines Agency are monitoring the situation and to date have reported no shortage of essential medications.

Follow-up appointments and elective procedures

Should I go ahead with scheduled appointments or should I avoid going to medical centres or hospitals?

If your hospital is still running scheduled outpatient appointments, it would be a good idea to contact them and ask if you should still attend. Many places are cancelling routine appointments or conducting them over the phone or via video online chat wherever possible. There are certain conditions where face-to-face visits are still required and you should not miss a visit without first consulting your consultant, doctor, nurse or other healthcare provider.

Travelling & going out

Am I safe outside of the house, provided I avoid crowded areas, e.g. can I go to the park or walk outside?

Yes. The virus is caught from people who have the infection and so there is no problem in going outside by yourself. What is important is to avoid contact with anyone who might be ill. Events bringing together a large number of people have been cancelled around Europe, to prevent the

spread of infection. If you have to leave your home (e.g., for food shopping), please keep a two-metre distance between yourself and others.

Can I still travel or use public transport?

Please pay attention to guidelines published by your national and local authorities. In many countries all non-essential travel has been forbidden and citizens have been asked to stay at home. In many places it is recommended to avoid using public transport, if possible, or to keep at least a distance of at least 2 metres from other passengers.

References:

1. [World Health Organization \(WHO\) Q&A on coronaviruses](#)
2. [Coronavirus disease \(COVID-19\) advice for the public: Myth busters](#)
3. [European Centre for Disease Prevention and Control: Information on COVID-19 for specific groups: the elderly, patients with chronic diseases, people with immunocompromising condition and pregnant women.](#)
4. [EMA gives advice on the use of non-steroidal anti-inflammatories for COVID-19](#)
5. [World Heart Federation \(WHF\): The link between COVID- 19 and CVD](#)
6. [COVID-19 and the cardiovascular system](#)
7. [Are patients with hypertension and diabetes mellitus at increased risk for COVID-19 infection?](#)
8. [Position Statement of the ESC Council on Hypertension on ACE-Inhibitors and Angiotensin Receptor Blockers](#)
9. [British Heart Foundation: Coronavirus: what it means for you if you have heart or circulatory disease](#)
10. [NHS: Stay at home advice](#)
11. [Coronavirus disease \(COVID-19\) advice for the public: When and how to use masks](#)