



## • COVID-19 and Heart Patients (Q&A)

*The ESC Patient Forum has received many questions about the coronavirus (COVID-19). This document pools together useful recommendations from international authorities and medical societies. Questions related to your own treatment should be directed to your physician.*

### • Important: Heart attacks and strokes during COVID-19

Should you experience any of the following symptoms, call emergency services immediately. Let them assess your symptoms.

#### Heart attack

- > worsening chest pains
- > palpitations
- > shortness of breath
- > fainting

#### Stroke

- > facial drooping
- > arm weakness
- > speech difficulties

Remember: Even during the pandemic, do not delay. Every minute counts. Hospitals will do their utmost to treat you in a segregated, safe environment.

**Read ESC President's message to heart patients: 'Appeal to "stay at home" during COVID-19 do not apply to heart attacks'**

### • 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, we now know from several studies that people with underlying heart conditions are more likely to show symptoms of the infection or to have a more severe infection than others, including a higher risk of dying from COVID-19. This observation is also true for people with risk factors such as diabetes, hypertension, or obesity.<sup>16, 17</sup>

- **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.<sup>1</sup>

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.

Provided that even cardiovascular risk factors (such as diabetes, obesity, chronic kidney disease and hypertension) are associated with increased severity and higher death rates of COVID-19, there are some groups of patients who carry a prohibitive risk of developing severe and fatal forms of the virus infection:

- > 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.<sup>3</sup>
- > Other high-risk groups include elderly and frail people as well as pregnant women with concomitant cardiovascular disease.<sup>3</sup>
- > Individuals with heart conditions, such as heart failure, dilated cardiomyopathy, advanced forms of other cardiomyopathies and patients with congenital cyanotic heart disease are at highest risk.

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 atrial fibrillation - Am I at greater risk of getting the coronavirus infection?**

Atrial fibrillation by itself does not increase the risk of infection. Nevertheless, many atrial fibrillation patients are older and have other conditions, such as heart failure, hypertension and diabetes, which make them more likely to have a more severe disease, if infected. All patients are advised to take general protective measures such as social distancing and washing hands frequently and appropriately to prevent infection.<sup>13</sup>

- **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 may favour coronary atherosclerotic plaques (fatty deposits) rupture leading to 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.
- > The virus may also cause myocarditis, an inflammation of the cardiac muscle.

However, there is nothing you can do to prevent these problems. You should strictly follow the recommendations to prevent becoming infected such as undergoing vaccination, maintaining personal distancing or even better, self-isolation, undergoing 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.<sup>7</sup> It is important to emphasize that this is a theory which has yet to be substantiated by evidence. Major health organizations 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.<sup>8,9</sup>

- **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.

There is, however, some evidence suggesting that the virus responsible for COVID-19 can directly infect the heart and cause myocarditis. Because of a lack of data, it currently remains unclear in how many patients this complication happens and how well the heart recovers after a myocarditis caused by COVID-19.<sup>16,17</sup> Furthermore, an 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.

- 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.



## • 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 barrier measures that everyone should do to limit their risk. If you have a heart condition, the following are important:

- > Access the vaccination programme available in your country
- > Avoid people who are sick.
- > Keep a distance of two metres from other individuals whenever possible.
- > Wash hands thoroughly with soap and warm water for at least 20 seconds.<sup>13</sup>
- > 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.
- > Stay at home as much as possible, including working from home if this is feasible.
- > If you have symptoms of fever (a temperature of 37.8°C or above), cough or a chest infection you should self-isolate.
- > In some countries you may be asked to follow a stricter isolation.

● **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.

Vaccines against COVID-19 are now available. More information for heart patients on COVID-19 vaccines [here](#).

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

In many European countries the use of fabric masks is still compulsory for instance when using public transport or going to the supermarket. It is therefore important to always consult with your local authorities on recommended practices in your area.

The World Health Organization encourages the use of fabric (non-medical) masks especially in settings in which it may not be possible to keep physical distancing such as, on public transport, in shops or in other confined or crowded environments.<sup>14</sup>

Furthermore, the World Health Organization recommends the use of medical masks to the following individuals: <sup>14</sup>

- > Health workers in clinical settings
- > People who are sick and exhibiting symptoms of COVID-19, even if only mild, or may suspect they have COVID-19 as well as caregivers of such people
- > Anyone awaiting COVID-19 test results or who has tested positive
- > People 60 years old and over or anyone with pre-existing medical conditions (such as diabetes, high blood pressure, heart disease, lung disease, or cancer)

It is important to remember that the use of masks should be combined with other key infection prevention and control measures such as hand hygiene and physical distancing, as they do not protect against COVID-19 on their own.

The World Health Organization (WHO) has useful information about how to use and dispose masks in the correct way .<sup>11</sup>

- **Can I take vitamins or other food supplements? Which ones? Do they protect me against the COVID-19?**

Taking formulated vitamins will not protect you against COVID-19. Several agents (including vitamin C, hydroquinone and antivirals) are currently being tested for their effects in COVID-19, but no trustworthy confirmatory data are available as yet.

A diet rich in fresh vegetables and fruit is generally recommended at all times - not just during COVID-19 - to help your body maintain a working immune system. Fresh vegetables and fruits contain a much broader range of necessary nutrients than vitamin pills. Therefore, it is always better to eat a lot of fresh vegetables and fruit than trying to compensate with formulated nutrients.

Having said that, some individuals might indeed lack specific vitamins or (micro-)nutrients. In this case, your GP or attending physician will be able to offer advice. When taking formulated vitamins, please make sure your intake does not exceed the recommended daily dosage. Some vitamins might harm you if taken in too high doses, and some supplements can interact negatively with your heart medicines.

- **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 shows that most people who have recovered from COVID-19 infection have antibodies to the virus in their blood. However, it remains unclear whether all COVID-19 survivors develop strong enough antibodies to protect them from catching the virus another time. There is ongoing research to find out more about antibodies and immunity to COVID-19.<sup>15</sup>

Furthermore, 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 but with the emergence of new variants of the COVID-19 virus this seems possible as well.<sup>15</sup>

It should be said that while the re-emergence of a positive molecular laboratory test for SARS Cov-2, not accompanied by symptoms, could be the reminder of a previous infection, recurrent symptoms are suggestive for reinfection.

Therefore, even if you have recovered from a COVID-19 infection, please continue to take general protective measures such as social distancing and washing hands frequently and appropriately to prevent infection.





## ● 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 prescribed.<sup>8</sup>

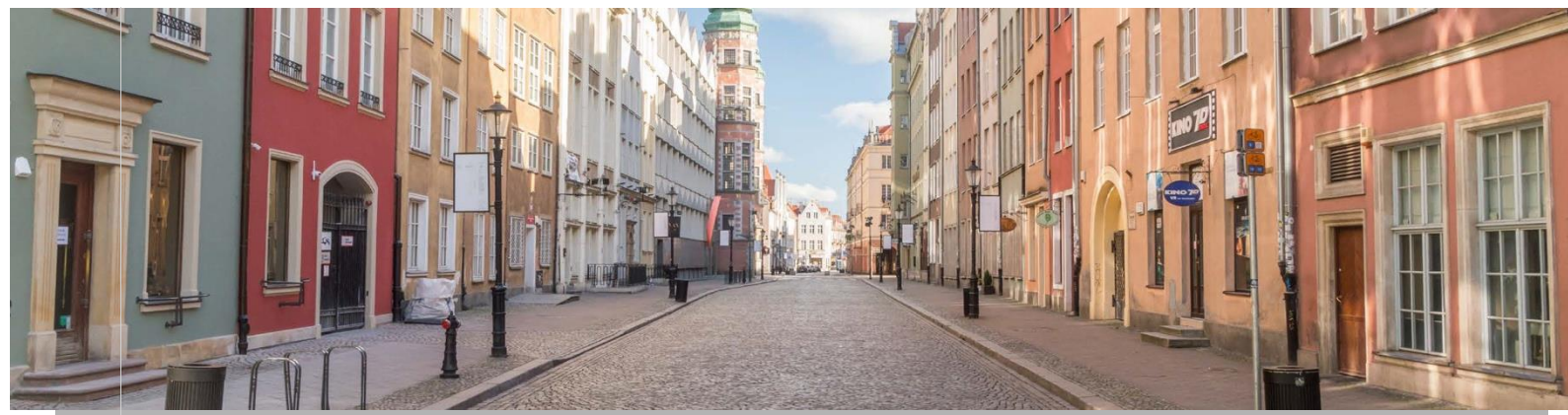
Patients who are on immune compromising medications, for instance after a heart transplant, should continue to take these medications as prescribed. Reducing the doses is associated with a high risk of suffering a rejection of the transplanted heart.

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.

**If you need to be admitted to hospital, please always make sure you take a complete and up-to-date list of all your medications with you!**

- 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.



## • Leaving home

- 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.

- 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.

In most countries, events bringing together a large number of people are still prohibited or can only be visited by people who can prove they have been vaccinated, have recovered from COVID-19 or have a negative COVID-19 test result. Please check your local/national requirements. If you leave your home (e.g., for food shopping), it is still recommended in many places to keep a distance between yourself and others or, if not possible, to wear a mask.

- Can I still travel or use public transport?

Please pay attention to guidelines published by your national and local authorities. In many countries traveling is now possible with proof of vaccination, recovery or a negative COVID-19 test result. Before traveling, please check the national or local requirements. Regarding public transport, the wearing of a face mask is still obligatory in many countries.





## • Emotional well-being

- I feel very anxious. Is there anything I can do to feel better?

This is an anxious time for everyone, and we are providing tips to help you cope with the uncertainties surrounding a pandemic that none of us were prepared for only a few months ago.

- > **Eat well**, regularly, and healthily. You need to keep your bodily strength up, but good food also gives you vital vitamins and minerals which help combat anxiety. Whole grains, fruit and vegetables (all the colours) will work away like magic on your anxiety levels and help to reduce them. I know cakes, biscuits and chocolate are delicious, but the extra sugar hit really isn't good for anxiety. A little now and then is a good thing, but in fact eating sweets can make you feel psychologically worse. The same goes for alcohol; keep it to a minimum.
- > **Drink plenty of water**. A cup of tea or coffee in a quiet place is also surprisingly helpful for calming and soothing anxious thoughts.
- > **Exercise**. Although we all have to keep a safe distance from each other now, this doesn't mean that you can't go out. In fact, going out in the daylight (even if it's cloudy) will be beneficial for your mental health. If you have a garden, walking round the garden, performing gentle (or not so gentle, depending on your ability) aerobic exercises, skipping with a rope, stepping up and down on a low step to music, all these are examples of exercise you can perform which will help alleviate anxiety. If you haven't got a garden, think of a route you can take from your home where you will not have to be in close proximity to others and go for a walk. Every day.
- > **Use virtual methods of socialising**. If you are able to Facetime/Skype friends and family do this, even once a day, to the same or a different person each day, to take your mind off your anxiety. Or ring them. It will give you a plan - something to look forward to - and will keep you in touch with your world. Thinking of others, listening to what's happening to them and offering support works surprising well in helping to reduce your own anxiety.
- > **Stay busy with chores**. Make a list of things you can do. i.e. clear out that cupboard, rearrange the room, declutter the wardrobe, weed the garden, etc. You do not have to do everything on the list, and not all at once, but it gives you further plans for you to tackle when you are feeling anxious. The feel-good factor when you have achieved something on your list is priceless.

- > **Recreational activity.** Listen to music, read a book, tackle crosswords, knit, sew, paint, draw, etc., etc. Any of the things which you enjoy doing but often haven't the time to do. Anything which will either provide an escape from anxious thoughts or will require concentration, will help you.
- > **Avoid excessive negative messaging.** Listen to the news, watching the news on TV or phone/laptop just once a day. Whilst we all need to know the latest advice regarding coronavirus and self-isolation, it is seriously anxiety-provoking to have it constantly in our ear. All you need to know will be available in one news-read. Please do not put yourself through more than this daily.
- > **Breathing.** This simple exercise really can help when you are feeling anxious. Sit or stand in a relaxed position (tighten and loosen your muscles so that you can feel the difference between a relaxed and tense state). Concentrate on your breath and breathe in deeply to a count of 5 and breath out slowly to a count of 10. Do this several times, until you start to feel the anxiety subside enough for you to do one of the above activities

## 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](#)
12. [COVID-19: chloroquine and hydroxychloroquine only to be used in clinical trials or emergency use programmes](#)
13. [WHO: How to handwash](#)
14. [WHO: Q&A: Masks and COVID-19](#)
15. [WHO: COVID-19 natural immunity. Scientific brief.](#)
16. [ESC guidance for the diagnosis and management of cardiovascular disease during the COVID-19 pandemic: part 1–epidemiology, pathophysiology, and diagnosis.](#)
17. [ESC guidance for the diagnosis and management of cardiovascular disease during the COVID-19 pandemic: part 2–care pathways, treatment, and follow-up.](#)