

May 15, 2020

Update on COVID-19 in Relation to Clotting and Vascular Disease:

There is a plethora of information about COVID-19 in the newspapers, on social media, and on various television stations. While much of this information is correct, it may be presented in an exaggerated and embellished format. The medical facts may be oversimplified and/or sensationalized resulting in fear in the patients who hear this information or read the headline. There have been many papers recently published demonstrating that patients infected with COVID-19 have an increased risk abnormal clotting; and this is true. This has resulted in increased anxiety in many of our patients with FMD. We have received E-mails, electronic messages, and calls from patients with FMD stating, "Since my blood vessels are already damaged from FMD, I am fearful of clotting occurring in these damaged vessels".

We would like to take this opportunity to tell you the facts about COVID-19 and vascular disease, especially the increased propensity for clotting. We hope that this will reassure you that the presence of FMD **DOES NOT** increase your risk of clotting, should you become infected with COVID-19.

There are several facts we would like to share with you:

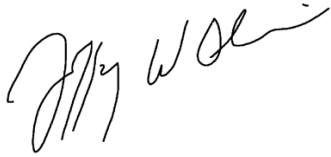
1. We are unaware of any direct connection between FMD and the likelihood of becoming infected with COVID-19 or having a poor outcome should you become infected.
2. Many patients have reached out to us in response to news stories they have heard about COVID-19 causing blood clots because of the immune and inflammatory response the infection causes. Some of these stories have focused on clots forming in different organs of the body including the kidneys and brain. Here are the facts:
 - a. There is no evidence whatsoever that COVID-19 causes dissections or aneurysms in arteries. This is not the type of abnormal clotting that occurs in patients.
 - b. The type of clotting seen in the setting of COVID-19 infection generally, involves one of the following:
 - i. Deep vein thrombosis (DVT). This is when clots form in the leg **VEINS**. If left untreated, these clots can cause leg swelling and can break off and travel to the heart and lungs which results in pulmonary embolism.
 - ii. Pulmonary Embolism (PE). This is when a leg clot breaks loose and is trapped in the lungs. A PE can cause worsening shortness of breath and low oxygen levels.
 - iii. In the sickest patients who are on a ventilator, clots can form in the lung itself and this is referred to as microthrombosis.

- c. We would like to emphasize that most of the clotting that occurs in patients with COVID-19 occurs in the sickest patients who are in the intensive care unit and on a ventilator.
 - d. There are research studies underway (and JWO is involved in conducting some of these studies) looking at how common DVT (leg vein clot) is in COVID-19 positive patients who are admitted to the hospital but not sick enough for an intensive care unit.
 - e. Some early research studies suggest that patients with severe COVID-19 infection who are treated with anticoagulants (i.e., blood thinning medications) have a better prognosis and a lower risk of death.
 - f. Both of our institutions have protocols in place for patients admitted to the hospital with COVID-19 infection to assess for risk of clotting and to treat with blood thinning medications as appropriate.
 - g. Clotting in an artery and strokes are much less common in COVID-19. To our knowledge, there has not been a reported case of this occurring in a patient with FMD.
3. As most of you are aware, NYC has had a large number of COVID-19 patients in our hospitals. Fortunately, the number of hospitalized patients has significantly decreased as have the number of patients in our intensive care units. These are encouraging statistics but we are all aware that we must continue to be safe as we are starting to see patients again in the outpatient clinics.
4. Both of us have slowly begun to open up our clinics and vascular laboratories. As we do this, we are focusing on the safety of our patients and our employees as a priority. At our hospitals, all patients are carefully screened prior to entry and all patients and staff are wearing masks. We are still doing telehealth visits, but we are also seeing patients in person. As many parts of the country move into the recovery phase from the initial surge of the pandemic, it will be important for all of our patients with FMD to work with their physicians to figure out if in person visits and testing should continue to be deferred or done virtually or if they should be rescheduled in the near future. As the virus will be with us for a while, we certainly do not want important vascular care and testing to be deferred indefinitely.
5. We have received a number of calls regarding news reports of the safety of Ace-inhibitors and angiotensin receptor blockers in the setting of COVID-19 infection. We were pleased to see subsequent research has not found an association of these medications with bad outcome among those infected. This supports our prior communication that multiple professional organizations have recommended that patients on these medications continue them during the COVID-19 pandemic unless otherwise directed by their physician.
6. **MOST IMPORTANT:** We all must remain vigilant as this virus still has the capacity to spread as some parts of the country begin the process of reopening. It is very important for all of you (and those without FMD as well) to follow the recommended guidelines:

- a. Social distancing
- b. Wear a facemask at all times you are outside of your homes.
- c. Wash your hand frequently.

We are all at risk of infection but patients with FMD are no more at risk than those in the general population. We hope this has increased your understanding of this disease and reassured you as well.

Best wishes during FMD Awareness Month and stay safe,



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