

Update on COVID-19 and Parkinson's Disease – April 2020

A month ago, I wrote about the oncoming COVID-19 pandemic, and our lack of knowledge regarding its potential effects. Now that we are in the midst of the pandemic in the USA, and a few countries are already in recovery mode, we have accumulated a good deal of important data, as doctors and other scientists have had the opportunity to study SARS-CoV-2 (the virus responsible for COVID-19) and its effects more closely and in greater numbers of people.

For people with Parkinson's disease, the main concern is that there is now ample evidence that the symptoms and signs of COVID-19 include nervous system problems. While the main manifestations remain fever, cough and breathing difficulty, others include cognitive changes (confusion, drowsiness), seizures and strokes.

A study from Wuhan, the original site of the pandemic, published April 17th, documented that 36% of 214 COVID-19 patients had neurologic complications. In this case, "neurologic" was broadly defined to include disorders of the central nervous system (including dizziness, headache, impaired consciousness, stroke, and seizure), the peripheral nerves (impairments of smell, vision and taste, and nerve-type pain), and muscle. Thus this figure is likely overly inclusive, since nervous system injury is usually not present in cases of headache, dizziness and muscle disease. Nevertheless, this publication properly brings attention to the potentially serious involvement of the nervous system in COVID-19 that was overlooked in initial reports. In fact, neurologic problems may be the only symptoms in some people, such as occurred in two Connecticut patients who were recently hospitalized with impaired consciousness due to COVID-19, and never developed fever or impaired breathing. Nervous system involvement may represent a particularly ominous development in the course of COVID-19. A study from a different Wuhan hospital documented that disorders of consciousness occurred in 22% of patients who ultimately died, versus only 1% of those who recovered.

There is conflicting evidence whether neurologic symptoms occur because the SARS-CoV-2 virus gets directly into the central nervous system itself, or alternatively triggers a powerful immune response that goes overboard and attacks the brain. This distinction is important because treating a virus that invades the central nervous system is much trickier than one that remains outside. The central nervous system is very selective about what chemicals it absorbs from the bloodstream. If the virus does invade the nervous system, then any potential treatment must also penetrate into the central nervous system in sufficient quantities to be able to destroy the virus. That would represent an extra obstacle to production of an effective treatment against the neurologic effects of the SARS-CoV-2 virus. Clearly, further research on this subject will be important.

One intriguing manifestation of COVID-19 is loss of the senses of smell and taste. This loss can be profound; one woman reported to the New York Times that she could not even detect the scent of bleach. A survey of COVID-19 patients from South Korea indicated that 30% reported their main initial symptom was the loss of smell. Reports from Germany indicate that one half to two thirds of patients eventually suffer some

disorder of smell and taste. In rare cases among those who have tested positive for the virus, this has been the only symptom of their infection. These data tell us that, during this pandemic, people who experience a sudden loss of smell or taste should isolate themselves in quarantine until their infection status is decided, or an alternate cause for the problem is found.

As many of you know, inability to smell is a frequent and often early symptom of PD. Whether studying how this virus makes its way into the nervous system will shed light on how PD develops is debatable, but it does represent another interesting connection between nervous system disease and loss of the sense of smell.

Despite the progress made in our knowledge base, the most important discoveries regarding this pandemic have yet to materialize. We need two kinds of reliable and readily available laboratory testing, one to detect the presence of the virus itself and the other for antibodies our immune systems may form against it. Multiple tests for the virus have already been developed, but their accuracy varies, and much greater availability is needed to identify all contagious individuals as rapidly as possible. Reliable identification of infected individuals has major implications for their treatment, for measuring our success at containing COVID-19, and for allocation of medical resources. Secondly, testing for antibodies against the virus will be necessary to identify people who have become immune to further infection, and are presumed safe to move about freely. This will be a key stepping stone to successful lifting of current restrictions against social interaction.

We also need to develop two kinds of medical treatment for COVID-19. One is treatment of those who are infected, to improve their chances of survival and speed their recovery. This requires a two-pronged approach involving both antiviral antibiotics and drugs that suppress excessive immune system responses. Existing medications are being tested for this purpose, but it is likely that producing newer, more effective solutions designed specifically for this novel virus will eventually be necessary. The other kind of needed treatment is prevention of infection through vaccination. This is the missing piece that will eventually make the world safe from COVID-19. Unfortunately, current estimates suggest it will take at least a year to develop, test for safety and efficacy, and manufacture a vaccine for the global population.

In the meantime, no evidence has yet emerged to suggest that anyone with PD is at greater risk than anyone without of contracting COVID-19, or that people with PD suffer from more severe illness as a result. Recommendations made at the outset of the pandemic's arrival in the USA still pertain. Make sure your medication and food supplies are adequate; use delivery services when possible. Keep exercising; watch InMotion videos for guidance and inspiration. Stay in frequent touch with loved ones, by telephone or online. Follow the same precautions as everyone else: stay away from people you do not live with, wash your hands frequently and thoroughly, and wear a mask if you must go out. These are proven effective measures, and they should continue to work for you.

David E. Riley, M.D.