The 11th Trial of a Cardiovascular Clinical Trialist: Coronavirus 2: Part 6

The coronavirus disease 2019 (COVID-19), pandemic has now been extended for almost 2 years, and clinicians are seeing the development of new complications in survivors of the illness. First, the pediatric population, with the Multisystem Inflammatory Syndrome as a post-COVID complication, which can also involve the heart.¹ Second, we are seeing a large number of adult patients in our out-patient practice who are survivors of severe and milder COVID-19 infections, who now present with characteristics of a persistent post-COVID syndrome characterized by mental depression, “brainfog” (difficulty thinking or concentrating), anosmia (loss of smell), ageusia (loss of taste), fatigue, anxiety, shortness of breath, fever, chest pain, tachycardia, palpitations, dizziness, headaches, and muscle weakness (also known as the Long-Hauler Syndrome). Symptoms appear to get worse after exercise or mental activities.

It is clear that the process of vaccinations against COVID-19 and its variants has reduced both morbidity and mortality from the infection, a remarkable public health advance. The different vaccines appear to be well tolerated; however, there are data to suggest that booster injections in adults may be necessary in the future to enhance antibody production and immune function. At the same time, there are ongoing studies designed to determine whether children below the age of 12 years should receive initial COVID-19 vaccination.

As a COVID-19 physician and a lead vaccinator in our regional immunization program, I have been impressed with all the caregivers, the subjects themselves, and the lack of any major adverse effects. Our hospital and the County Center in Westchester, NY, were 1 of 5 New York State hubs with responsibility for the lower Hudson Valley. Seventy-percent of the population in our region were vaccinated with at least 1 dose, over 2 million subjects. We are grateful for the wonderful support of volunteers, physicians, dentists, pharmacists, nurses, local police, and the National Guard. The National Guard was first deployed to Westchester County during the onset of the COVID-19 pandemic in April 2020.

Included in this issue of *Cardiology in Review* are 3 new articles related to COVID-19. First, Varkey and Frishman² report on the incidence of cardiac arrhythmias, a common complication of COVID-19–related illnesses. Mechanisms of arrhythmogenesis include viral involvement of the lung with hypoxia and vascular thrombogenesis, viral myocarditis, abnormal host-human immune responses, myocardial ischemia, electrolyte and volume disturbances, adverse drug side effects, and drug–drug interactions, especially those involving the COVID-19 electrocardiographic QT interval.³

Fishkin et al⁴ report on the metabolic causes and consequences of COVID-infection. A higher risk of COVID-19 infection and its complications are seen in diabetic and/or obese patients who also have systemic hypertension, observations made in both the elderly and younger patients.

Lee and Frishman⁵ report on the effects of human frailty as a cause for COVID-19 infection, and may explain why elderly nursing home patients have had an increased morbidity and mortality risk. However, frailty in younger patients may also be a causative factor for severe COVID-19 infection.

In conclusion, we have learned a great deal about the natural history, treatment and prevention of COVID-19 dating back to our first editorial report a year and a half ago.⁶ Vaccination has clearly altered the natural history of COVID-19 world-wide, and its use should be encouraged. Its relative safety has been proven. It will be of interest to see whether post-COVID syndrome is a common condition, and how it should be managed in COVID-19 survivors.

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