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Editorial

One-year Multidisciplinary Follow-Up of COVID-19 Patients Requiring Invasive Mechanical Ventilation



THIS ISSUE contains an important and thought-provoking article about long-term clinical and behavioral outcomes of seriously ill patients with COVID-19: “*ONE-YEAR MULTIDISCIPLINARY FOLLOW-UP OF COVID-19 PATIENTS REQUIRING INVASIVE MECHANICAL VENTILATION.*”¹ COVID-19 is a pandemic disease entity with global clinical, economic, and societal consequences.

This study was undertaken in response to a surge of COVID-19 cases in Italy between February 27 and April 25, 2020, which occurred after the initial outbreak in Wuhan, China, and before the first variants, especially the Delta and Omicron variants, emerged.¹ At the time this study was conducted, there were almost no long-term data available on the quality of life and cognition in patients who survived COVID-19 acute respiratory distress syndrome (ARDS) after the initial onset of the disease. Of the 116 patients admitted to the study institution’s intensive care unit during the study period with COVID-19 ARDS who received at least 1 day of mechanical ventilation, 61 (52.6%) survived and were discharged. The discharged patients were 89% male, with a mean age of 56 ± 11.9 years. The authors of this study used telephone interviews to administer validated behavioral and psychologic measures to assess the overall quality of life and functional ability in their subjects’ daily lives at 2 and 12 months after discharge. Of the 61 survivors, 56 (91.8%) consented to the telephone assessments, which is impressive for survey research, and 36 (64%) of the respondents agreed to a follow-up computed tomography scan. More than 80% reported good functional recovery and no difficulties in pursuing their usual activities. Most of the respondents (91.7%) reported no dyspnea at rest, and only 5 (8.9%) respondents reported severe anxiety and/or depression. The reported findings are particularly interesting in that they showed that the study population had an overall good functional recovery. These positive outcomes partly may be a function of the study population’s demographics; that is, predominantly late middle-aged men.

This study was one of the first large-scale systematic investigations to address the issue of long-term quality of life and daily functioning in those surviving severe ARDS stemming from COVID-19. One of the more troubling aspects of the disease is that a significant percentage of patients who manifest different degrees of disease severity and clinical recovery suffer from a variety of long-term behavioral issues that significantly impair quality of life and the ability to perform activities of daily living.² Although researchers are still in the early stages of characterizing these problems, this article is a significant first step in quantifying their incidence and clinical effect. This has assumed particular importance, especially in the United States, where long-haul COVID, in conjunction with the Centers for Disease Control and Prevention and the United States Department of Human Health Services, is now classified as a distinct disease entity. The present study covered outcomes at 2 and 12 months.¹ Future studies will benefit by accurately delineating the length and severity of long-haul COVID by following patients for several years using measures, such as those in the current article, that will allow meaningful comparisons and meta-analyses.^{2,3}

There are several similar studies of the first wave of patients with COVID-19 in the literature that reported outcomes at 6 months rather than 1 year.⁴⁻⁶ Although differing relative to geographic region, institution, study population, severity of disease, assessment instruments, and comorbidities, they all showed appreciable incidences of somatic and psychologic deficits at 6 months, apparently occurring in patients with varying degrees of COVID severity. The Italian study, on the other hand, demonstrated that these symptoms largely abated by 12 months in a population of seriously ill patients, an encouraging finding. The reasons for this disparity are not clear, which indicates the pressing need for further, larger studies to elucidate underlying mechanisms.

The literature shows that a number of comorbidities, for example, obesity, hypertension, diabetes, contribute to clinical and behavioral sequelae in patients with COVID-19, and patients with these comorbidities, often have worse outcomes.⁷ A significant number of patients with these comorbidities

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should be included in long-term outcome studies so that accurate, quantitative information will be available to guide future clinicians in the treatment of patients with COVID-19.

In addition to comorbidities, future studies will need to include a greater degree of diversity in study populations. There also should be an attempt to ensure that gender, ethnic, and socioeconomic groups are included adequately, so that appropriate statistical analyses can be performed. Subpopulations of particular interest include the elderly, women, minorities, and economically disadvantaged.⁸ Outcome studies also should be conducted at more than one institution. Although multiinstitutional studies do not ensure demographic diversity, they have geographic diversity and avoid some of the subtle limitations of studying patients from a single institution.

Since these original investigations, the COVID-19 virus has mutated into several variants, the most prevalent currently being the Delta and Omicron. Vaccines are also now available, as are antiviral oral medications for patients when symptoms first appear. Patient populations can be divided into the vaccinated, the vaccinated who have received boosters, the unvaccinated, and those who are vaccinated but have breakthrough infections. Many institutions now have clinics to treat patients who have recovered from COVID-19 but still are experiencing problems from their illness. In order to get conclusive information about the long-term clinical and behavioral effects of COVID-19 and its variants and how these effects may be mitigated by the vaccines and other treatments, researchers will need to design and perform further rigorous outcome studies. These will serve to differentiate patients who fall into the above categories and also address a number of issues that were not covered in the initial investigations.

The pioneering Italian study serves as a blueprint for the type of rigorous outcomes studies that need to be performed across subpopulations in order to understand the true

implications of COVID-19's societal burden, as well as create insights into causality.

Declaration of Competing Interest

None.

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