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Descriptive Analysis of Acute Ischemic Stroke in COVID-19 Patients Through The Course Of The COVID-19 Pandemic

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Title:
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Abstract:
Coronavirus disease 2019 (COVID-19) has been associated with Acute Ischemic Stroke (AIS). Here, we characterize our institutional experience with management of COVID-19 and AIS. Baseline demographics, clinical, imaging, and outcomes data were determined in patients with COVID-19 and AIS presenting within March 2020 thru October 2020, and November 2020 thru August 2021, based on institutional COVID-19 hospitalization volume. Of 2512 COVID-19 patients, 35 (1.39%, mean age 63.3 years, 54% women) had AIS. AIS recognition was frequently delayed after COVID-19 symptoms (median 19.5 days). Four patients (31%) were on therapeutic anticoagulation at AIS recognition. AIS mechanism was undetermined or due to multiple etiologies in most cases (n=20, 57%). Three patients underwent IV TPA, and three underwent mechanical thrombectomy, of which two suffered re-occlusion. Three patients had incomplete mRNA vaccination course. Fourteen (40%) died with 26 (74%) having poor outcomes. Critical COVID-19 severity was associated with worsened mortality (p=0.02). More patients (12/16; 75%) had either worsening or similar 3-month functional outcomes, than those with improvement, indicating the devastating impact of co-existing AIS and COVID-19. Comparative analysis showed that patients in the later cohort had earlier AIS presentation, less stroke risk factors, more comprehensive workup, more defined stroke mechanisms, less instance of critical COVID-19 severity, more utilization of IV TPA, and a trend towards worse outcomes for the sub-group of mild-to-moderate COVID-19 severity. AIS incidence, NIHSS, and overall outcomes were similar. Further studies should investigate outcomes beyond 3 months and their predictive factors, impact of completed vaccination course, and access to neurologic care.

Keywords:
COVID-19; SARS-CoV-2; Acute ischemic stroke; Large vessel occlusion; Encephalopathy