Subarachnoid hemorrhage and COVID-19

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Striking evidence exhibited that COVID-19 impacts the multiorgan system in adults, including the central nervous system (CNS) and cerebrovascular events (CVEs) including intracranial hemorrhage, has been published in association with this infection [1)].

For Batcik et al. every suspected spontaneous subarachnoid hemorrhage (SAH) patient should be screened for possible COVID-19 symptoms. If there are positive lung symptoms, non-contrast chest, and brain CT at the same time should be obtained. SAH may occur in the early and late course of COVID-19 infection. Understanding the occurrence of SAH in COVID-19 is still at the beginning phase. Detection of spontaneous SAH in patients with COVID-19 is likely not easy given limited and difficult examination in many critical care patients. They speculated that COVID-19 infection triggers SAHs, but the mechanism can not be fully understood by limited sources or publications. If we consider the nervous system as a great orchestra that can express a complete range of rhythms and melodies and the most complex harmonic combinations, we will find it easier to understand the relationship between Covid-19 related endothelial dysfunction and SAH. To understand the biomechanical, molecular, and cellular effects of Covid-19 infection-related SAH, more histopathological studies are needed. Its early recognition is imperative [2)].

Basirjafari et al. described subarachnoid hemorrhage (SAH) as a severe neurological manifestation associated with pediatric COVID-19 [3)] An increase in leukocyte count and elevated C-reactive protein (CRP) in the presented case might be interpreted as activation of the immune system and inflammation that can be associated with both COVID-19 and SAH. CRP is an inflammatory marker that has been revealed to be associated with the severity of COVID-19 [4)].

Harrogate et al. reported 2 cases of nonaneurysmal SAH which have occurred in patients with severe COVID-19. They attributed this to thromboembolism in the context of enhanced venous thromboembolism prophylaxis; alternative causes for nonaneurysmal SAH including reversible cerebral vasoconstriction syndrome, posterior reversible encephalopathy syndrome or cerebral amyloid angiopathy were considered unlikely based on the investigation results. These cases highlight that, although prophylaxis and treatment of thrombosis associated with COVID-19 are undoubtedly important, clinicians should be alert to the possibility of haemorrhagic complications, particularly those associated with thromboembolic disease. Careful review of neuroimaging for subtle changes consistent with nonaneurysmal subarachnoid haemorrhage is required. Although likely to be a marker of severe disease due to COVID-19, SAH can be associated with a favourable outcome. [5)].

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