

Link: <https://narraj.org/main/article/view/277>

Neurological manifestations of COVID-19 in Indonesia: Assessment of the role of sex and age

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DOI:

<https://doi.org/10.52225/narra.v3i3.277>

Keywords:

COVID-19, outbreak, neurological manifestation, neurological symptom, headache

ABSTRACT

Coronavirus disease 2019 (COVID-19), caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), can manifest in multiple organs. While the primary manifestations of COVID-19 occur in the respiratory system, other organ systems are also involved, including nervous systems that cause neurological symptoms. The aim of this study was to determine the neurological manifestations of COVID-19 patients and to assess the role of age and sex on neurological manifestation incidence. A cross-sectional study was conducted at Pelamonia Hospital, Makassar, Indonesia, among inpatient COVID-19 cases, using a total sampling method. Demographic data and neurological manifestations of the COVID-19 patients were collected. The associations between age and sex with the incidence of neurological symptoms were analyzed using the Chi-

squared test. Out of 424 inpatients with COVID-19 cases, 62.3% were females, with the highest age group was 20–40 years (42.7%). The neurological symptoms were reported in 232 patients, accounting for approximately 54.7%. The most frequently reported neurological symptom was headache (n=104, 44.8%), followed by anosmia (n=44, 18.9%), ageusia (n=48, 20.6%), myopathy (n=14, 6%), stroke (n=10, 4.3%), seizure (n=5, 2.1%), and altered consciousness (n=7, 3%). An association was found between sex and the incidence of headache, myopathy, stroke, and altered consciousness. There was also an association between age and the incidence of headache and stroke. The study highlights that COVID-19 patients commonly exhibit neurological implications affecting the central nervous system and peripheral nervous system. Therefore, it is crucial for the early detection of neurological symptoms in COVID-19 cases to have better management.