



Relationship between headache prevalence and long COVID-19: a narrative review

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Introduction

COVID-19, an infectious disease caused by the SARS-CoV-2 virus first identified in China, has precipitated a pandemic of unprecedented scale since 2020. While the primary impact of COVID-19 is on the respiratory system, its clinical manifestations are extensive and can endure for weeks post-infection, leading to what is termed post-COVID or long COVID. This condition is characterized by the persistence of symptoms, signs, or clinical parameters for two or more weeks beyond the acute phase, without returning to a pre-infection healthy state. Among the most prevalent symptoms in this context is headache. Although the precise mechanisms remain under investigation, it is hypothesized that SARS-CoV-2 might infiltrate trigeminal nerve endings by compromising the blood-brain barrier, activate the trigeminovascular system via endothelial cells expressing ACE2, or stimulate perivascular trigeminal nerve endings through the release of cytokines and pro-inflammatory mediators. These processes could lead to headache as a primary symptom, alongside fatigue, myalgia, anosmia, dysgeusia, and behavioral disturbances.

Objective

To review the literature on the prevalence of headache among individuals who have fully or partially recovered from COVID-19 symptoms (post-COVID/long-COVID).

Methods

A comprehensive search was performed in the PubMed database for articles categorized as clinical trials, meta-analyses, randomized controlled trials, and systematic reviews, using the descriptors "COVID OR COVID-19," AND "headache OR migraine," AND "long term OR post-COVID." Only studies that systematically analyzed data on post-COVID neurological sequelae were included.

Results

The search yielded 86 articles, of which 24 met the inclusion criteria deemed pertinent to the review's objective. The findings revealed variability in the definition of post-COVID, with durations ranging from two weeks to three months post-infection. There was also inconsistency in headache assessment methodologies, but most studies identified headache among the top three sequelae, with prevalence rates varying from 8% to 91%, and a median prevalence of 40%.

Conclusion

Headache is a prominent symptom of COVID-19, persisting as a neurological sequel in post-COVID cases and significantly affecting recovered individuals. Further rigorous studies are necessary to identify risk factors, vulnerable populations, and effective prophylactic measures.