Editorial

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Exploring Secondary Headaches: Insights from Glaucoma and COVID-19 Infection

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Secondary headaches are clinically significant manifestations that often reflect underlying systemic or neurological conditions. Two notable examples include headaches associated with glaucoma and those related to systemic infections, such as COVID-19. This editorial integrates findings from recent studies to explore their clinical implications and pathophysiological mechanisms.

Recent research has identified associations between primary headaches—migraine and tension-type headache (TTH)—and primary glaucoma subtypes, including open-angle glaucoma (OAG) and closed-angle glaucoma (CAG). The study revealed that patients with migraine are at a higher risk of developing OAG due to systemic vasculopathy, while patients with TTH are more likely to experience CAG, which is linked to mechanical and structural factors. These findings underscore the importance of vascular and structural evaluations in managing patients with primary headaches, as they may predispose individuals to secondary complications such as glaucoma.[1]

Similarly, headaches have emerged as a common neurological symptom during and after COVID-19 infections, affecting approximately 25% of infected individuals. These headaches often persist post-recovery, impacting 6%–45% of patients. Key mechanisms include cytokine storms, where elevated inflammatory markers such as interleukin-6 sensitize trigeminal pathways. Additionally, SARS-CoV-2-induced endothelial dysfunction disrupts the blood-brain barrier, and viral entry via ACE2 receptors damages neuronal and glial cells. These mechanisms frequently result in headaches that mimic migraines or TTH, necessitating accurate diagnosis and appropriate intervention.[2]

The overlapping vascular and inflammatory pathways in these conditions highlight the importance of interdisciplinary headache management. Regular neurological evaluations for patients with glaucoma may help identify coexisting headache disorders, while post-COVID-19 patients require persistent headache monitoring with tailored interventions such as nonsteroidal anti-inflammatory drugs, calcitonin gene-related peptide antagonists, or nerve blocks. For high-risk patients with glaucoma or COVID-19-related neurological issues, early screening and targeted neurological testing are essential. This includes assessing anosmia or cognitive changes in COVID-19 patients and conducting vision tests, intraocular pressure measurements, and ophthalmic ultrasound or tonometry to screen for glaucoma. These measures facilitate early identification and intervention, ensuring effective management with tailored treatments and non-pharmacological approaches. Non-pharmacological strategies, such as

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lifestyle modifications, stress management, and dietary adjustments, are particularly critical for patients experiencing prolonged headaches.

These secondary headaches underscore the intricate relationship between systemic and neurological factors. A deeper understanding of their mechanisms supports improved diagnosis and treatment, ultimately alleviating headache symptoms. This approach not only improves patient management but also advances our knowledge of headache-related pathophysiology.

AVAILABILITY OF DATA AND MATERIAL

The data presented in this study are available upon reasonable request from the corresponding author.

AUTHOR CONTRIBUTIONS

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CONFLICT OF INTEREST

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