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Association between vestibular symptoms and headache attacks after visual self-motion stimulation in individuals with migraine

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Introduction
Migraine is a complex neurological disorder associated with alterations in sensory processing, including increased sensitivity to visual stimuli. Evidence suggests that visual self-motion stimulation may trigger vestibular symptoms and cerebral hyperactivity in regions related to visual and pain processing, which could facilitate the onset of a migraine attack. However, it remains unclear whether the occurrence of vestibular symptoms is associated with the onset of headache attacks following this type of stimulus.

Objective
To investigate the occurrence of vestibular symptoms and migraine attacks after visual self-motion stimulation and to analyze the association between these outcomes in individuals with migraine.

Methods
This was a cross-sectional study including 52 individuals of both sexes, aged 18 to 55 years, diagnosed with migraine according to the 3rd International Classification of Headache Disorders, and reporting at least 3 headache days in the previous month. Participants watched a 5-minute first-person roller coaster simulation video with changes in direction and acceleration. Two days after exposure, participants were asked about the occurrence of migraine attacks and vestibular symptoms (dizziness/nausea). The association between outcomes was analyzed using a contingency table and the chi-square test (^{2}), and the magnitude of the association was estimated using the odds ratio (OR) with a 95% confidence interval (95% CI).

Results
Within the two days following video exposure, 25% of participants reported dizziness/nausea and 21% experienced a migraine attack. A significant association was observed between vestibular symptoms and the occurrence of migraine attacks (^{2}=6.50; p=0.011). The odds ratio showed that, after watching the video, the occurrence of migraine attacks was higher among participants who reported vestibular symptoms (OR=5.83; 95% CI=1.38–24.6).

Conclusion
In individuals with migraine exposed to visual self-motion stimulation, the occurrence of vestibular symptoms is associated with the occurrence of migraine attacks. These findings suggest that individuals who are more sensitive to this type of visual stimulus may also present greater susceptibility to developing migraine attacks after exposure.

Keywords:
Migraine
Vestibular symptoms
Visual stimulation

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