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SEROTONIN MODULATION IN MIGRAINE: FROM PATHOPHYSIOLOGY TO TREATMENT

Liliana Brito Rodrigues, Marcelo Guimarães Andrade, Ana Julia Silva Venancio, Marina Maiolino de Carvalho

OBJECTIVE

To evaluate the role of serotonin modulation in the pathophysiology of migraine and its therapeutic potential.

METHODS

Systematic review of articles published on the PubMED platform between 2020 and 2024, using the descriptors “Migraine Disorders” and “Neurotransmitters”. With filters for clinical trial, meta-analysis and randomized controlled trial. Of the 165 articles found, 14 were selected for their thematic and methodological relevance.

RESULTS

Migraine is defined as a recurrent neurovascular disorder, with headache episodes commonly accompanied by nausea, photophobia and phonophobia, lasting between 4 and 72 hours. Evidence suggests that alterations in the availability and reuptake of serotonin modulate immunoneural activity through the release of inflammatory cytokines, which stimulate trigeminal afferents and promote the release of vasoactive peptides, aggravating the pain. Lasmiditan, a selective 5-HT1F receptor agonist, showed superior efficacy to placebo in reducing pain up to two hours after administration (OR: 2.02), in all the doses tested (50, 100 and 200 mg), with better results in the 100 and 200 mg doses, as well as less need for rescue medication.

Efficacy was more evident when administered in the initial phase of pain (40% response), compared to moderate or severe episodes (28-33%). The most frequent adverse events were dizziness (>10%), paresthesia, fatigue, nausea and somnolence (>1%), with low severity and no significant association with comorbidities. In pediatric patients, a transient reduction of 6.4 bpm in heart rate was observed, with a return to baseline between 4 and 12 hours.

CONCLUSION

Modulation of the serotonergic pathway, particularly by means of 5-HT1F agonists, represents a promising therapeutic approach for migraine, with proven efficacy and a favorable safety profile. The presence of dizziness as an adverse effect, which is also common in migraine attacks, is not a significant limitation to its use. The findings support the continuation of research with other molecules in the class, with the aim of expanding therapeutic options and optimizing the individualization of treatment.

REFERENCES