

Utility of Stapedial Reflex in Idiopathic Intracranial Hypertension: The Proof is in the Pudding

Idiopathic intracranial hypertension (IIH) is a clinical syndrome due to the raised intracranial pressure (ICP) in the absence of a focal brain lesion, hydrocephalus, cerebrospinal fluid (CSF) abnormalities, and any underlying pathology. Although the exact pathogenesis of IIH is still not fully explicated, several causal factors have been proposed.^[1]

Headache is the most common symptom. However, the stretching or compression of various nerves due to the raised ICP may produce several other neurological symptoms. Elevation in ICP may increase the pressure around the optic nerve, leading to papilledema and symptom of transient visual obscurations.^[2] Similarly, elevation in ICP may cause proportional increase in inner ear fluid (endolymph and perilymph) pressure. This can lead to various audiological clinical features such as pulsatile tinnitus, hearing loss, dizziness, vertigo, and aural fullness.^[3] In addition, abnormalities in stapedial or acoustic reflex have also been reported in few patients. However, the exact clinical and diagnostic significance of abnormal stapedial reflexes in patients with IIH is not fully understood. In this issue of the journal, the authors report a case series of the patients with IIH.^[4] The authors recorded stapedial reflex in four patients with IIH and noted abnormal stapedial reflexes in two of the patients. This abnormal stapedial or acoustic reflex reversed to normal after therapy. The authors hypothesize that the absence of the stapedial reflex may be a supporting finding in the diagnosis of IIH. They also suggest that a serial recording of the stapedial reflex may be used in the monitoring of IIH patients with initial negative reflex.

This is a novel observation, and it may be of relevance in understanding the pathophysiology of various audiological manifestations noted in patients with IIH. Abnormal reflexes may be due to the raised pressure in the inner ear fluid following raised ICP. However, it is difficult to draw any definite clinical conclusion as the series included only two patients. The author claims that the absence of the stapedial reflex may be supporting evidence for the diagnosis of IIH, which requires further confirmation. Only two of the four patients had absent stapedial reflex. Acoustic reflexes were noted in all the ears of 28 patients with IIH in a study by Ozer *et al.*^[5] Human acoustic reflex arc is complicated, and it is mediated by interconnected neural pathways involving lower brainstem. A number of secondary pathologies mimicking IIH may also hamper the stapedial reflex. Moreover, the acoustic reflex is also hampered by outer, middle, and inner ear pathologies.^[6] Therefore, the differential diagnostic utility of acoustic reflex in IIH needs to

be proven with studies involving a larger number of patients and different etiologies. The suggestion for serial monitoring of the stapedial reflex in patients with initial negative reflex is not practical. To find out the negative stapedial reflex, all patients with IIH will have to be subjected for this test which may not be feasible. Further studies are required to determine the clinical significance of absent stapedial reflex in patients with IIH. It will be important to study whether the absence of stapedial reflex reflects a severe disease or it indicates a poor prognosis. Similarly, its usefulness in monitoring the therapy needs to be tested in comparison with other commonly used markers such as the presence of papilledema and visual field charting. A comparative study involving IIH patients with absent stapedial reflex and normal stapedial reflex is warranted to solve this issue. Until then, it will remain an additional observation with uncertain clinical utility.

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REFERENCES

1. Markey KA, Mollan SP, Jensen RH, Sinclair AJ. Understanding idiopathic intracranial hypertension: Mechanisms, management, and future directions. *Lancet Neurol* 2016;15:78-91.
2. Digre KB, Nakamoto BK, Warner JE, Langeberg WJ, Baggaley SK, Katz BJ. A comparison of idiopathic intracranial hypertension with and without papilledema. *Headache* 2009;49:185-93.
3. Murphy TP. Otologic manifestations of pseudotumour cerebri. *J Otolaryngol* 1991;20:258-61.
4. Onder H. The Potential Significance of Reversed Stapes Reflex in Clinical Practice in Idiopathic Intracranial Hypertension. *Ann Indian Acad Neurol* 2022;25:214-7.
5. Ozer S, Ozer PA, Kaya SC, Atas A, Altıparmak E, Atay G, *et al.* Results of audiological evaluation in patients with idiopathic intracranial hypertension. *Int Adv Otol* 2013;9:193-202.
6. Margolis RH, Levine SC. Acoustic reflex measures in audiological evaluation. *Otolaryngol Clin North Am* 1991;24:329-47.

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