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CONQUER CHIARI
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Chiari & Trigeminal Neuralgia

The trigeminal nerve, also known as cranial nerve V, originates in the brainstem, receives sensory information from the face, and controls the chewing muscles of the jaw. It has three main branches: V1 (ophthalmic) receives sensory input from the scalp, eyes, nose, and forehead; V2 (maxillary) receives sensory input from the teeth, sinuses, and palate; and V3 (mandibular) receives sensation from the lower third of the face and controls the chewing muscles. Trigeminal neuralgia (TN) is a rare condition where people experience sudden, intense pain along the trigeminal nerve. Over the years there have been a number of reports of Chiari patients with TN, but the association of Chiari and TN has not been studied in depth.

Recently, an international group conducted a systematic review of the medical literature to identify cases of TN linked with Chiari. After an exhaustive search, they found studies totaling only nineteen patients. Interestingly, although females comprise about 80% of CM patients (in the US), half of the TN/CM cases were men. Six of the patients had pain primarily along the V2 branch, 2 along V3, and 1 along V1. Six more of the patients had pain along multiple nerve branches, while the pain location could not be determined for 4 of the patients.

Of the nineteen cases, 5 were treated with medications such as muscle relaxants, anti-inflammatories, or anti-convulsants. The other 14 were treated surgically, either by addressing the Chiari (decompression or shunt) or combining the Chiari surgery with microvascular decompression to directly treat the TN. Overall the treatments significantly improved the TN symptoms, but there weren't enough cases to draw strong conclusions as to what works best.

Although the exact link between Chiari and TN is not known, there are several possibilities. One is that in some CM patients, the blood supply to the trigeminal nerve root gets compressed which then damages the nerve. Another possibility is that the trigeminal nerve gets physically stretched somewhere along its branches. Finally, the TN pain could be a result of compression of the brainstem where the nerve originates.

Although the authors only identified 19 published cases, involvement of the trigeminal nerve in Chiari may be more common. Among all the Chiari1000 respondents (adults, children, male, and female) 25% reported facial pain and 30% reported facial numbness.

Sources:

Chiari malformation and its influence on trigeminal neuralgia: a systematic review. Badary A, Almealawy YF, Florez-Perdomo WA, Sanker V, Andrew Awuah W, Abdul-Rahman T, Salam Alabide A, Alrubaye SN, Saleh A, Ergen A, Chaurasia B, Azab MA, Atallah O. Ann Med Surg (Lond). 2024 Sep 4;86(10):5999-6011. doi: 10.1097/MS9.0000000000002527. eCollection 2024 Oct.

Neuroanatomy, Cranial Nerve 5 (Trigeminal). Huff T, et al. 2024 Apr 20. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2024 Jan–. PMID: 29489263

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Conquer Chiari's research updates highlight and summarize interesting publications from the medical literature while providing background and context. The summaries do contain some medical terminology and assume a general

understanding of Chiari. Introductory information and many more research articles can be found in the Conquer Chiari Library.

Conquer Chiari is a 501(c)(3) public charity dedicated to improving the experiences and outcomes of Chiari patients through education, awareness and research.