Microvascular decompression for trigeminal neuralgia and multiple sclerosis

- 13. Trigeminal Neuralgia
- Trigeminal Neuralgia: Rapid Evidence Review
- Multimodal treatment of multiple sclerosis related trigeminal neuralgia: A single centre experience
- Trigeminal neuralgia management in patients with multiple sclerosis: A systematic review of approaches and outcomes
- Trigeminal neuralgia - Overview
- What Is New and Effective in Treating Refractory Trigeminal Neuralgia?
- Trigeminal neuralgia in multiple sclerosis: proposal of surgical flowchart and long-term outcome evaluation in a mono-istitutional cohort
- Comparison of treatment results between microvascular decompression and gamma knife radiosurgery in primary trigeminal neuralgia

---

TN patients showed increased serum and CSF levels of specific proteins and that successful surgery normalizes these protein levels, highlighting its potential as an effective treatment. However, the similarity between MS and controls challenges the idea of shared pathophysiology with TN, suggesting distinct underlying mechanisms in these conditions.

Significance: This study advances our understanding of trigeminal neuralgia (TN) and its association with multiple sclerosis (MS). By analysing 92 protein biomarkers, we identified distinctive molecular profiles in TN patients, shedding light on potential pathophysiological mechanisms. The observation that successful surgery normalizes many protein levels suggests a promising avenue for TN treatment. Furthermore, the contrasting protein patterns between TN and MS challenge prevailing assumptions of similarity between the two conditions and point to distinct pathophysiological mechanisms [1)]

Montano et al. evaluated the results of microvascular decompression for trigeminal neuralgia (TN) and multiple sclerosis (MS) and studied the role of several clinical and surgical factors as possible prognosticators of good outcome. To do this they performed, the first literature review with a pooled analysis of data. A PubMed search of literature was conducted using the following terms: “microvascular decompression”, “trigeminal neuralgia” and “multiple sclerosis”. They screened 64 articles. Of them, 7 studies were eligible for this review. As outcome indicators they used the acute pain relief (APR) and the recurrence of pain. An APR was obtained in 71.42% and a recurrence of pain was reported in 26.00% of cases, respectively. At univariate analysis, younger age at surgery ($p = 0.0419$) and performing MVD as the first treatment ($p = 0.0384$) were associated to a higher probability of APR. The evidence of an MRI brainstem lesion related to the TN ($p = 0.0482$) was associated to a lower probability to obtain an APR after MVD. None of the evaluated factors affect the probability of recurrence of pain. At multivariate analysis the evidence of a brainstem MRI lesion related to the TN emerged as a negative prognosticator of APR ($p = 0.0169$). Our literature pooled analysis showed that MVD is effective in treating patients with MS-related TN. The evidence on MRI of

a demyelinating plaque related to the TN is associated with a worse response to MVD. These data could suggest that MVD would be indicated mainly in patients without brainstem MRI lesions [2)].

1)

Lafta MS, Sokolov AV, Landtblom AM, Ericson H, Schiöth HB, Abu Hamdeh S. Exploring biomarkers in trigeminal neuralgia patients operated with microvascular decompression: A comparison with multiple sclerosis patients and non-neurological controls. Eur J Pain. 2023 Dec 29. doi: 10.1002/ejp.2231. Epub ahead of print. PMID: 38158702.

2)

Montano N, Rapisarda A, Ioannoni E, Olivi A. Microvascular decompression in patients with trigeminal neuralgia and multiple sclerosis: results and analysis of possible prognostic factors. Acta Neurol Belg. 2019 Dec 2. doi: 10.1007/s13760-019-01258-5. [Epub ahead of print] PubMed PMID: 31792763.