

Anatomical predictors of poor outcome in surgical treatment for trigeminal neuralgia.

Galina Moisak, Mikhail Amelin, Jamil Rzaev, Elena Kulikova

The objective of the present study was to estimate anatomical factors, which can influence for return of pain in patients suffering from trigeminal neuralgia, who underwent microvascular decompression.

Materials and methods: 37 patients with typical trigeminal neuralgia (Burchiel K., 2003) (mean age 62.3, 15 males, 22 females) underwent surgery (microvascular decompression of trigeminal nerve). Patients with symptomatic TN, bilateral TN, previous TN-related operations were excluded. Control group contained 10 age-matched persons without TN.

Pre-operative MR was performed on 1.5 T MR unit Siemens Magnetom Avanto, imaging of posterior fossa was performed with axial T2-weighted three-dimensional constructive steady-state (3D-CISS). The images were used for estimation of cross-sectional area of cistern of cerebello-pontine angle, symmetry of CPA cisterns, angles between trigeminal nerves and pons, lengths of trigeminal nerves, angle between trigeminal nerves. Follow-up ranged from 2 weeks to 18 months.

Results: In our study there were statistically significant associations between pain syndrome and anatomical factors (cross-sectional area of cistern of cerebello-pontine angle, angles between trigeminal nerves and pons, lengths of trigeminal nerves) ($p < 0.01$), while no significant associations in controls.

The patients with TN had asymmetrical and smaller CPA and shorter cisternal trigeminal nerve on the affected side ($p < 0.05$).

Most patients with pain recurrence after MVD had asymmetrical and small CPA and short cisternal trigeminal nerve on the affected side (trend).

Conclusions: Small area of CPA with its asymmetry and short length of trigeminal nerve may be considered as factors in the occurrence of neurovascular conflict and predictors of return of pain in patients with trigeminal neuralgia soon after surgery. This information can be useful to select the patients with TN likely to benefit from MVD, help to preoperative planning and can predict long-term outcome.