Summary

The aim of this study is to provide scientific evidence on the impact of neurophysiological monitoring on the protection of cranial nerves VII and VIII during resection of cerebellopontine angle tumors, which has significant implications for improving surgical safety, outcomes, and therapeutic decision-making. This objective was achieved through a literature review and original research conducted on a representative sample of 100 patients operated on in Poland between January 2021 and May 2023.

The results of the original research show that neurophysiological monitoring during cerebellopontine angle tumor surgery significantly impacts functional outcomes and postoperative complications. The group of patients with neurophysiological monitoring (Group II) exhibited a lower incidence of nerve VII damage compared to the group without monitoring (22% vs. 8%). Monitoring significantly reduces the risk of nerve VII damage. Postoperatively, patients with monitoring more frequently achieved better results on the House-Brackmann scale and AAO-HNS classification. The incidence of nerve VIII damage (hearing loss) was similar in both groups (48% in the non-monitoring group vs. 34% in the monitoring group). Although monitoring did not completely eliminate nerve VIII damage, it reduced the risk of greater hearing loss compared to the baseline. The frequency of postoperative complications, such as tinnitus, balance disorders, ear fullness, and vertigo, was similar in both groups. Neurophysiological monitoring did not significantly reduce overall postoperative complications. The quality of life improved in both the monitoring and non-monitoring groups. However, significant differences were observed in the psychological and social dimensions, where patients with monitoring reported a higher quality of life. The physical and environmental functioning dimensions did not show significant differences between the groups.