

5th International Conference on **Pediatrics and Neonatal Care**

July 21-22, 2026 | Vienna, Austria



Klaus Novak

Medical University of Vienna, Austria

Feasibility of continuous motor evoked potential monitoring during neurosurgical interventions in infants younger than 12 months: A single-center experience and review of the literature

Purpose

Intraoperative neurophysiological monitoring (IONM) using transcranial motor evoked potentials (MEPs) has not been widely accepted as a routine technique in pediatric neurosurgery for very young infants. Concerns regarding the feasibility and reliability of MEPs due to the immaturity of the corticospinal tract, have limited its application in this age group.

Methods

Intraoperative neurophysiological monitoring was performed in a series of 22 infants undergoing tethered cord surgery using somatosensory and motor evoked potentials. Muscle MEPs were elicited by transcranial electrical stimulation applied via scalp needle electrodes. The results of motor evoked potentials of this single-center study are presented and compared with findings from the existing literature.

Results

Lower-extremity response following transcranial stimulation were successfully elicited and continuously monitored in 21 out of 22 patients. Methodological aspects and outcomes reported in the literature are reviewed and compared with our findings, with emphasis on stimulation technique, anesthesia, and surgical indications.

Conclusion

Muscle motor evoked potentials are a feasible method for monitoring spinal cord function in infants younger than 12 months. The method can be safely applied as valuable adjunct for intraoperative monitoring of nervous system integrity in pediatric neurosurgery for this age group.

Biography

Dr. Klaus Novak is a consultant neurosurgeon at the Department of Neurosurgery, Medical University of Vienna, Austria, with extensive expertise in functional neurosurgery, spinal surgery, epilepsy surgery, and the surgical management of movement disorders. He has more than two decades of clinical and academic experience and is recognised for his contributions to advanced neurosurgical techniques and intraoperative neurophysiology.