

# Optimizing of Epilepsy Surgery in Paediatric Patients

## Abstract

Epilepsy surgery represents an effective treatment of intractable focal epilepsy. The presented work aims to describe the state of the art and enhance diagnostic and therapeutic algorithm in paediatric patients. The ultimate goal is to improve the outcome of surgeries. The work depicts the evolution of the paediatric epilepsy surgery program in Motol Epilepsy Center over the course of years 2000–2017. Complexity of patients (younger age, epileptogenic zone in proximity of eloquent cortex, multifocal MRI findings) and surgeries (hemispherotomy) alike increased over time. However, the outcomes in terms of postoperative seizure-freedom and complications remained stable. Cognitive abilities of patients improved by 9.1 IQ/DQ points one year after surgery. Patients with preexisting intellectual deficit reached the most significant increase. We developed a novel paradigm of intraoperative cortical electrical stimulation mapping. Furthermore, we introduced a technique employing visual detection of SEEG electrodes during the surgery. These procedures aim to achieve a complete resection while avoiding complications. We developed and standardized Czech versions of questionnaires IPES a QOLIE-AD-48 assessing quality of life in children with epilepsy. We observed a phenotype with distinctive intergenerational gradient of severity in a cohort of four families with pathogenic variants in genes of GATOR1 complex.

**Keywords:** children, intractable epilepsy, focal cortical dysplasia, epilepsy surgery, health-related quality of life