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Oral Presentation

Epilepsy Surgery in the Pediatric Age

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Abstract

Surgery has proven to be a very useful option for the treatment of pharmacoresistant structural epilepsies in children and adolescents. Recent advances in diagnostic modalities and surgical techniques have widened the spectrum of epilepsies amenable to surgery, and progress in neuroanesthesia and critical care has rendered this treatment increasingly safe and viable, even in the first years of life. Focal cortical dysplasia, glioneuronal tumors, and porencephaly due to perinatal stroke are the most frequent etiologies in this age group. In contrast to adult cohorts, one-third of children and adolescents undergo multilobar or hemispheric procedures, whereas frontal or temporal corticectomies are performed at similar rates. The younger the patient, the larger the resection or disconnection: infants often require more extensive procedures than older children or adolescents. The poor specifity of electroclinical correlations and the challenging MRI interpretation due to the ongoing myelination still pose considerable obstacles to candidate selection in very young children who, however, benefit the most from the opportunity to compensate functional deficits due to the pronounced brain plasticity. Developmental retardation and psychiatric comorbidity do not contraindicate surgery. Overall, seizure freedom is achieved in two-third of the cases, with surgical success rates varying according to the underlying etiology and duration of follow-up. Global cognitive development remains stable or may improve after surgery. Individual developmental trajectories are determined by presurgical cognitive status, age at surgery, seizure control, and antiepileptic drug tapering. In all, epilepsy surgery in children and adolescents is no longer a treatment of last resort but may be considered "disease-modifying", particularly in the first years of life, considering the vulnerability of the immature brain to the ongoing processes of epileptogenesis.

Keywords: MRI, Epilepsy, Age, Patient.

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