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Oral Presentation

Surgical Treatment of Epilepsies: What Has Changed over the last 25 Years?

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Abstract

Surgical procedures to treat severe epilepsies have gained general acceptance. Different approaches reflect not only different pathologies and pathophysiological conditions, but also the history of epileptological and surgical concepts. Despite of these differences between individual institutions, we can observe some fundamental conceptual changes over the last two or three decades that have found wide approval. Overall, there is a clear trend towards the treatment of children and adolescents. This is especially true, since negative consequences of seizures and pharmacotherapy on the immature brain are well known, and since favorable cognitive development can be expected from postoperative seizure control. In temporomesial epilepsies, there is a tendency to more circumscribed resections such as selective amygdalohippocampectomy, although no homogenous data are available indicating that preservation of lateral neocortical structures is advantageous with respect to neurocognitive functions. On the other hand, it has also not been shown that lateral or extended hippocampal resection may be necessary for seizure control. Extratemporal procedures usually require extensive presurgical diagnostics, but can be successfully performed even around areas of high functionality using modern techniques, including functional imaging, tractography, neuronavigation as well as intraoperative mapping and monitoring. In large hemispheric lesions, the classical Rasmussen technique of hemispherectomy has been left in favor of more sophisticated approaches such as the transsylvian or perisylvian hemispherotomy. These new techniques noticeably reduce blood loss and spare operation time which is important, since in particular young children are affected. Amongst functional methods, stimulation techniques have recently gained increasing interest. Possibly, local epilepsy therapy based on closed-loop intervention systems may introduce a new era of epilepsy therapy in future so far open questions such as methods for seizure prediction have been solved. Further improvement of presurgical techniques and operative approaches require the concentration of the epilepsy surgical program to specialised centers, where different competences and sufficient experience are available in order to successfully manage these complex problems.

Keywords: Treatment, Epilepsy, Temporomesial.

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