Awake Brain Surgery In Children

Atroune L

CHU Mustapha Bacha; Neurosurgery department.

Abstract

Awake brain surgery is now a common practice. Even though it's getting more and more enriched when it comes to adults; its literature remains poor in children.

The aim was to study the feasibility of this procedure in the pediatric population and to note the specificities to be taken into account in particular in regards of the child's conditioning.

We described the case of a 15-year-old left-handed patient presented with right rolandic operculum glioma revealed by epilepsy resistant to therapy. Results: We had the patient's full cooperation; the tests used were the same used in adults. Motivational and language mapping has been positive. Regardless of the question of bad collaboration we encounter in young children under the age of 10, certain anatomical and functional particularities such as cortical and sub-cortical myelination, maturation of functional networks can influence the direct electrical stimulation method and may total of 18 full text articles reporting the results of 50 patients were included in the analysis. Sixteen of the 18 studies were retrospective studies, comprising 7 case series, 9 case reports, and 2 reviews.

Eleven studies were conducted from anesthesiological (25 patients) and 7 from neurosurgical (25 patients) departments. Most of the patients underwent ABS for supratentorial lesions (26 patients), followed by epilepsy surgery (16 patients) and deep brain stimulation (DBS) (8 patients). The median age was 15 years (range 8-17 years). Persistent deficits occurred in 6 patients, (12%), corresponding to minor motor palsies (4%) and neuropsychological concerns (8%). An awake procedure was aborted in 2 patients (4%) due to cooperation failure and anxiety, respectively.limit its use in children. Conclusion: The Improvement of individualized management of patientscan only is achieved if the research's perspectives on cognitive functioning are optimized with the need to adapt the tools for language assessment.

Despite well-documented beneficial aspects, ABS remains mainly limited to adults. This review confirms a reliable tolerability of ABS in selected children; however, recommendations and guidelines for its standardized implementation in this patient group are pending. Recommendations and guidelines may address diagnostic workup and intra-operative handling besides criteria of eligibility, psychological preparation, and coordinated neuropsychological testing in order to routinely offer ABS to children.

Six children aged 11 to 16 were operated on while awake under local anesthesia with language brain mapping for supratentorial brain lesions (tumor and cavernoma). The preoperative planning comprised functional magnetic resonance imaging (MRI) and neuropsychologic and psychologic assessment. The specific preoperative preparation is clearly explained including hypnosis conditioning and psychiatric evaluation.

The success of the procedure was based on the ability to perform the language brain mapping and the tumor removal without putting the patient to sleep. We investigated the pediatric specificities, psychological experience, and neuropsychologic follow-up. The children experienced little anxiety, probably in large part due to the use of hypnosis. We succeeded in doing the cortical-subcortical mapping and removing the tumor without putting the patient to sleep in all cases. The psychological experience was good, and the neuropsychologic follow-up showed a favorable evolution. A 15-year-old male left-handed patient with a long-standing history of drug-resistant epilepsy was referred to our unit for surgical resection of what was presumed to be a low-grade glioma in the right Rolandic operculum. For the previous 8 months, he had been experiencing 6 -7 seizures per month despite appropriate dosages of valproic acid and carbamazepine. Physical examination did not reveal any neurological disorder; however, he did have a moderate headache. Neuropsychological tests showed good administration of the cognitive functions essential to the control and achievement of motivated behaviors, as well as good planning, judgment and decision-making capacities, self-monitoring, and mental flexibility. There was no deficit of linguistic activities (no aphasia). The episodic system and short-term memory were preserved. MRI imaging revealed an 18 x18.7x18 mm intra-axial cortico-subcortical right parietal nodular formation, oval, with

Citation: Atroune L; Awake Brain Surgery In Children: 7th International Conference on Pediatrics, Neonatology and Pediatric Surgery, October11-12, 2021, Webinar