

5-aminolevulinic acid fluorescence guided resection in children

In 2014, only three casuistic reports of fluorescence-guided surgery used in children have been published.

Beez et al., report pilot series of 16 pediatric brain tumors treated with 5-ALA.

Sixteen patients (mean age 9 years, range 1-16 years) received a standardized 5-ALA dose according to the published protocol after informed parental consent. The fluorescence status (positive versus negative) in correlation with histology as well as blood samples and adverse clinical symptoms were recorded.

Histology revealed pilocytic astrocytoma (n = 7), classical medulloblastoma (n = 4), anaplastic astrocytoma (n = 1), glioblastoma (n = 3) and anaplastic ependymoma (n = 1). Positive fluorescence was observed in cases of anaplastic astrocytoma, glioblastoma, and medulloblastoma, respectively. Significant increases were registered for alanine aminotransferase (14.92 ± 1.106 U/l vs. 37.70 ± 3.795 U/l, $P = 0.0020$) and gamma glutamyl transpeptidase (12.69 ± 1.638 U/l vs. 39.29 ± 6.342 U/l, $P = 0.0156$), correlated with young age. No further adverse reactions were evident.

Positive fluorescence was observed in two high-grade gliomas and one medulloblastoma after oral administration of 5-ALA. Thus, 5-ALA appears capable of inducing fluorescence in pediatric high-grade tumors. Adverse reactions observed in children were similar to those reported for adults, although very young children might be at increased risk. Further studies are required to elucidate pharmacokinetic and pharmacodynamic properties of 5-ALA in children and to assess its prognostic role in the resection of pediatric brain tumors ¹⁾.

¹⁾

Beez T, Sarikaya-Seiwert S, Steiger HJ, Hänggi D. Fluorescence-guided surgery with 5-aminolevulinic acid for resection of brain tumors in children—a technical report. *Acta Neurochir (Wien)*. 2014 Mar;156(3):597-604. doi: 10.1007/s00701-014-1997-9. PubMed PMID: 24449149.

From:

<https://neurosurgerywiki.com/wiki/> - Neurosurgery Wiki

Permanent link:

https://neurosurgerywiki.com/wiki/doku.php?id=5-aminolevulinic_acid_fluorescence_guided_resection_in_children

Last update: 2024/06/07 02:57

