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[J Clin Oncol.](#) 2009 Jul 20;27(21):3526-32. Epub 2009 May 11.

### **Cognitive deficits and predictors 3 years after diagnosis of a pilocytic astrocytoma in childhood.**

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**PURPOSE** To prospectively study cognitive deficits and predictors 3 years after diagnosis in a large series of pediatric patients treated for pilocytic astrocytoma (PA). **PATIENTS AND METHODS** Sixty-one of 67 children were grouped according to infratentorial, supratentorial midline, and supratentorial hemispheric site. Intelligence, memory, attention, language, visual-spatial, and executive functions were assessed. Included predictors were sex, age, relapse, diagnosis-assessment interval, hydrocephalus, kind of treatment, and tumor variables. **Results** All children with PA had problems with sustained attention and speed. In the infratentorial group, there also were deficits in verbal intelligence, visual-spatial memory, executive functioning, and naming. Verbal intelligence and verbal memory problems occurred in the brainstem tumor group. The supratentorial hemispheric tumor group had additional problems with selective attention and executive functioning, and the supratentorial midline tumor group displayed no extra impairments. More specifically, the dorsal supratentorial midline tumor group displayed problems with language and verbal memory. Predictors for lower cognitive functioning were hydrocephalus, radiotherapy, residual tumor size, and age; predictors for better functioning were chemotherapy or treatment of hydrocephalus. Almost 60% of children had problems with academic achievement, for which risk factors were relapse and younger age at diagnosis. **CONCLUSION** Despite normal intelligence at long-term follow-up, children treated for PA display invalidating cognitive impairments. Adequate treatment of hydrocephalus is important for a more favorable long-term cognitive outcome. Even children without initial severe deficits may develop cognitive impairments years after diagnosis, partly because of the phenomenon of growing into deficit, which has devastating implications for academic achievement and quality of life (QOL).

PMID: 19433687 [PubMed - indexed for MEDLINE]

MeSH Terms

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