Degree of Resection and Presence of Metastasis are Predictors for Permanent CSF Diversion Following Resection of Posterior Fossa Tumors in Children

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Introduction

The purpose of this study was to review the incidence of VP shunt insertion following the resection of pediatric posterior fossa tumors and identify clinical variables that can predict the need for permanent CSF diversion in these children

Methods

Retrospective database review conducted for all consecutive cases of pediatric posterior fossa tumors that were operated on at our institution between January 2007 and December 2013. Cases were excluded if VP shunt preceded tumor resection. Clinical variables analyzed were: 1) Age, 2) Pathology, 3) Location, 4) CNS metastasis, 5) Perioperative infection, 6) Degree of resection, 7) presence of postoperative blood in the ventricles 8) Tumor consistency. Location was divided into midline (4th ventricle) vs. peripheral. CNS metastasis was defined as either positive CSF cytology or positive MRI of the neuroaxis as reported by a neuroradiologist. Tumor consistency was divided into Solid or cystic component

Results

87 cases were identified. The mean age was 5.4 yrs. (± 3.4). 44 cases (56%) required permanent CSF diversion after resection of their tumor. Degree of resection (P = 0.025) and the presence of CNS metastasis (P=0.011) were both predictive for the need for permanent CSF diversion (multivariable multinomial logistic regression analysis). 40% of cases with complete resection required a shunt while 74% with subtotal resection needed a shunt. 44% of cases with no metastasis needed a shunt vs. 85% with metastasis. Age (P= 0.22), location (P= 0.42), infection (P= 0.55), intraventricular blood (P=0.19) were not predictive for the need of permanent postoperative CSF diversion

Conclusions

Degree of tumor resection and the presence of metastasis significantly increase the chance for permanent CSF diversion after resection of posterior fossa tumors in children. This should be taken into consideration in preoperative family counseling and postoperative monitoring for hydrocephalus. Because about half of our cases only required a VP shunt, we do not recommend preoperative CSF diversion for these cases

Learning Objectives

VP shunt requriment

References

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