Feasibility, Risk Profile and Diagnostic Yield of Stereotactic Biopsy in Children and Young Adults with Brain Lesions.


Abstract in English, German

Objective To evaluate the feasibility, safety, and diagnostic yield of stereotactic biopsy (SB) in children and adolescents with cerebral lesions. Methods We performed a systematic review of the literature and a retrospective analysis of all pediatric and adolescent patients who underwent SB for unclear brain lesions at our center. We collected patient and lesion-associated parameters, analysed the rate of procedural complications and diagnostic yield. Results Our institutional series consisted of 285 SBs in 269 children and young adults between 1989 and 2016 (median age, 9 (range 1-18) years). There was no procedure-related mortality. Permanent and transient morbidity was 0.7% and 5.8%, respectively. Lesions were located in brain lobes (26.3%) and in midline structures (73.7%). The diagnostic yield was 97.5% and histology consisted low-grade gliomas (44.2%), high-grade gliomas (15.1%), non-glial tumors (22.8%), and non-neoplastic disease (15.4%). Morbidity was not associated with tumor location, age, histology or intraoperative position of the patient. In order to compare our findings with previous reports, we reviewed 25 studies with 1 109 children and young adults which had underwent SB. The diagnostic yield ranged between 83% and 100%. The reported morbidity and mortality rates range from 0-27% and 0-3.3%, respectively. Conclusions SB in this particular patient population is a safe and a high-yield diagnostic procedure and indicates therefore its importance in the light of personalized medicine with the development of individual molecular treatment strategies.

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PMID: 28561225 DOI: 10.1055/s-0043-101908