Diffuse intrinsic pontine gliomas: Diagnostic approach and treatment strategies

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Introduction

• Diffuse intrinsic pontine gliomas (DIPG) are high grade gliomas of the brainstem with fatal outcomes

• Radiation is known to be partially effective to control the immediate flare but relapse is frequent

• There has been ongoing research to study the role of molecular subgroups and identification of specific targets but this is not possible with histopathological diagnosis alone. The authors‘ objective is to highlight the need for and discuss ongoing molecular research
Methods

• There is an inherent need for the availability of tumor tissue to be able to conduct research studies

• The authors advocate the use of neuronavigation assisted stereotactic technique for tumor biopsy
Results

• The technique is feasible with a predefined surgical trajectory

• After obtaining tissue diagnosis further work can be performed to isolate and identify histone protein genetic mutations and methylation changes responsible for DIPG molecular subgrouping
Results

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Conclusions

Despite identification of genetic/epigenetic mutations, growth factors, receptors, and tissue biomarkers, the oncogenesis of DIPG remains elusive.

The authors’ effort to provide a comprehensive review on DIPG to better understand the disease, need for tissue diagnosis, described surgical technique, and need for pre-clinical and clinical future research is novel.