ABSTRACT CITATION ID: NOAE064.396
LGG-03. PREDICTIVE VALUE OF ACQUIRED NYSTAGMUS FOR PEDIATRIC BRAIN TUMOR ASSOCIATED VISUAL IMPAIRMENT: A RETROSPECTIVE STUDY
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BACKGROUND: Visual impairment (VI), defined as visual acuity (VA) loss or visual field (VF) defects, is common in pediatric brain tumors of the optic pathway and may impact the quality of life. VI is a challenge to establish, especially in young children. However, pediatric brain tumor patients might concurrently have acquired nystagmus (AN), which can easily be observed. The aim of this study was to investigate whether AN is predictive of VI in pediatric brain tumor patients. If correlated, AN could be an early warning sign for brain tumor related VI, warranting MRI scanning to prevent further visual deterioration, thus decreasing morbidity and mortality.

METHODS: Data on tumor characteristics, VA (in LogMAR), VF (type of) AN and other ophthalmic investigations were collected from the medical records of pediatric brain tumor patients in the Máxima Pediatric Brain Tumor Ophthalmology cohort (MP-BT-O cohort). These characteristics between children with (nystagmus group) and without (control group) AN were compared to determine the predictors of VI. RESULTS: The MP-BT-O cohort consists of 389 children (18y) with a brain tumor who had visual assessment. 95 children had AN (24.4%). The mean best corrected visual acuity (BCVA) was 0.10 LogMAR (CI 0.06-0.14) in the control and 0.50 LogMAR (CI 0.35-0.66) in the nystagmus group (p<0.001). Nystagmus type was found to be a significant predictor of VI (p<0.001). Specifically horizontal AN (a decrease in BCVA of 0.75 LogMAR, p<0.001) and mixed AN (a decrease in BCVA of 0.61 LogMAR, p<0.001) were independent predictors of VI, corrected for tumor location (p=0.04) and age at diagnosis (an increase in BCVA of -0.02 LogMAR per year, p<0.001). CONCLUSIONS: Acquired nystagmus, especially horizontal and mixed nystagmus, is an independent predictor of VI in pediatric brain tumor patients and should be interpreted as a warning sign for the presence of VI.