

Oral presentation

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## Visual field examination for children with shunted hydrocephalus

Diana Rudolph<sup>1</sup>, Ina Sterker<sup>2</sup>, Holger Till<sup>1</sup>, Gerd Gräfe<sup>1</sup> and Christian Geyer\*<sup>1</sup>

Address: <sup>1</sup>Department of Pediatric Surgery, University of Leipzig, Germany (Liebigstraße 20a, 04103 Leipzig), Germany and <sup>2</sup>Department of Ophthalmology, University of Leipzig, Germany (Liebigstraße 20a, 04103 Leipzig), Germany

Email: Christian Geyer\* - christian.geyer@medizin.uni-leipzig.de

\* Corresponding author

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### Background

In conjunction with hydrocephalus many ophthalmological abnormalities are described. Results of visual field diagnosis remain a matter of further discussion. The aim of this study was to investigate visual field deficits of children with shunted hydrocephalus.

### Materials and methods

From Dec. 2007 until Dec. 2008 all children over 6 years of age treated with hydrocephalus in our institute were included. The children received an ophthalmological investigation concerning strabismus and binocular function, ophthalmoscopy, visual acuity and refraction. The special focus was visual field diagnosis, which we made with all children having cognitive conditions. The investigation was made by using the 'Goldmann' - perimeter (static perimetry). Children with and without visual field defects were compared concerning age at the time of ophthalmological examination, genesis of hydrocephalus and FOH of current CT or MRI scans.

### Results

Fifty-six children were investigated. There were 24 females and 32 males. The mean age was 14.7 years. The following orthoptic pathologies were diagnosed: 29 children had strabismus, 17 exotropia, 12 esotropia, 4 children hypotropia, 2 hypertropia and 3 children heterophoria. Nystagmus was found in 10 children. The ocular fundus investigation showed 13 children with optic nerve atrophy.

A visual field diagnosis was possible with 42 of the 56 patients. The investigation was incomplete in 14 patients with cognitive deficits or inadequate compliance. 24 of 42 children showed a concentric visual field constriction between 10° and 50° out of the centre. Children with visual field deficits were older than those with normal visual field ( $p = 0.1$ ). Nine of 10 children with postmeningitic hydrocephalus had a visual field defect ( $p = 0.035$ ). Children with visual field defects had a significant higher FOH ( $p = 0.017$ ).

### Conclusion

Our results suggest that children with shunted hydrocephalus have a superior risk of having ophthalmological abnormalities. Visual field deficit is often a problem of these patients. Visual field diagnostic can complete the ophthalmological monitoring in patients with hydrocephalus especially in patients with large ventricles. Children with postmeningitic hydrocephalus should be monitored more frequently and intensively.