

## OP68

**Change in optic nerve sheath diameter as a radiological marker of ETV outcome**

Llewellyn Padayachy<sup>1</sup>, Lucas Chamberlain<sup>2</sup>, Henri Carrara<sup>2</sup>, Anthony Figaji<sup>1</sup>, Graham Fieggen<sup>1</sup>

<sup>1</sup> Red Cross Children's Hospital, Cape Town, South Africa

<sup>2</sup> University of Cape Town, Cape Town, South Africa

**Introduction:** The clinical response of pediatric patients after an ETV remain quite varied. Numerous radiological features correlating with ETV outcome have been described, but there still remains a distinct group of patients in which the outcome of the procedure remains uncertain.

**Methods:** We reviewed the imaging for all ETV's performed between 2008 and 2012, to identify whether a change in the optic nerve sheath diameter (ONSD) as measured on T2 axial MRI imaging provided a useful radiological marker of ETV outcome. Pre-operative and post-operative imaging acquired within 3 months of the procedure) was available for all subjects included in the study. The ONSD in both eyes was measured and the average change in diameter was compared to other imaging features of ETV outcome, viz change in ventricular size, morphology of the third ventricular floor, change in subarachnoid CSF volume around the cortex, patency of the stoma and CSF flow across the stoma. These were then correlated with clinical assessment of ETV outcome.

**Results:** MRI imaging in 26 patients was adequate to measure and compare the change in ONSD with outcome. In successful ETV's (n=22) the mean change in ONSD was  $9.05 \pm 5.4$  mm, but in failed ETV's (n=4), the mean change in ONSD was  $2.13 \pm 1.49$  mm ( $p < 0.02$ ). Change in ONSD has a positive predictive value of 92.6% and a negative predictive value of 100% (ROC=0.75).

**Conclusion:** Change in ONSD is a good independent radiological marker of ETV outcome. When combined with historically accepted imaging features of ETV outcome, it proves particularly helpful.