

Neurosurgery Abstracts

Title: COMPARISON OF NEUROCOGNITIVE OUTCOMES AND VENTRICLE SIZE IN MYELOMENINGOCELE INFANTS TREATED FOR HYDROCEPHALUS BY SHUNTING TO THOSE TREATED WITH COMBINED ENDOSCOPIC THIRD VENTRICULOSTOMY / CHOROID PLEXUIS CAUTERIZATION

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Background: We previously reported that, for myelomeningocele (MM) infants with hydrocephalus (HC), combined choroid plexus cauterization (CPC) and endoscopic third ventriculostomy (ETV) had a significantly higher rate of success (76%) than ETV alone (35%), and that this outcome was durable over time with most failures occurring early. Although ETV/CPC had a lower incidence of infection and re-operation than that reported for shunting, we wanted to insure that there was no developmental advantage to shunting in comparison to ETV/CPC.

Method: The Bayley Scales of Infant Development III (BSID) was used to assess development over time in 111 Ugandan myelomeningocele infants. Three groups were assessed: 21 patients not requiring treatment for HC (NT); 23 treated by shunting (VPS); and 67 treated by ETV/CPC. Raw BSID scores were converted to scaled scores for analysis in comparison to published norms. Frontal-occipital horn ratios (FOR) were calculated from late post-operative CT scans to assess ventricular volume.

Results: There was no significant difference in the mean age at assessment among the 3 groups (15.53 months overall, range 5-52 months). The NT group had normal scaled scores in all categories, except gross motor, and had significantly better scaled scores for cognitive, fine motor, and expressive and receptive communication, compared to the VPS and ETV/CPC groups. The ETV/CPC group had non-significantly better scores in all categories than the VPS group with the exception of significantly better scores in receptive communication. FOR was significantly greater for VPS compared to ETV/CPC, and both were significantly greater than the NT group.

Conclusion: ETV/CPC treats HC in MM infants with lower risk of infection and failure than shunting without compromising early neurocognitive development or degree of ventricular volume reduction. This suggests ETV/CPC is superior to shunting as the primary treatment for hydrocephalus in this patient population.