

Oral Presentation

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## Pattern of regional white matter CBF in normal pressure hydrocephalus during infusion test

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from 48th Annual Meeting of the Society for Research into Hydrocephalus and Spina Bifida  
Dublin, Ireland, 23–26 June 2004  
Published: 23 December 2004

*Cerebrospinal Fluid Research* 2004, 1(Suppl 1):S14 doi:10.1186/1743-8454-1-S1-S14

This article is available from: <http://www.cerebrospinalfluidresearch.com/content/1/S1/S14>

### Clinical background

Mean CBF has been demonstrated to be lower in NPH than in normal controls. It is still unclear whether this is cause or effect of the neuronal dysfunction. The present study aimed at assessing the distribution of baseline and change of regional white matter (WM) CBF in NPH before and during a controlled rise of ICP.

chymal interstitial pressure gradient brought about by suffusion of CSF from the ventricles into the parenchyma.

### Materials and Methods

Ten patients with idiopathic NPH (mean age 69 years) underwent a CSF infusion study via a previously implanted right frontal ventricular catheter connected to a subcutaneous reservoir. CBF was measured by H215O PET at baseline and then during the steady-state plateau of raised ICP. The PET images were co-registered to 3D structural T1-weighted MR images. In 10 healthy normal volunteers (mean age 45 years) image acquisition and reconstruction were accomplished in the same manner, except that only a baseline CBF determination was performed.

### Results

The profile of baseline regional WM CBF in NPH patients showed a lowest CBF adjacent to the lateral ventricles with an increasing relationship with distance from the ventricles ( $P < 0.0001$ ), whereas in controls no relationship was apparent ( $P = 0.0748$ ). The percent changes of regional WM CBF in patients during raised ICP showed the deepest decrease close to ventricles with an increasing relationship with distance ( $P = 0.0007$ ).

### Conclusion

The increasing profile of WM baseline CBF might suggest that a potential mechanism for CBF reduction in NPH is the collapse of the microcirculation induced by a paren-