TGF-β levels might predict CCH after subarachnoid hemorrhage

Chronic communicating hydrocephalus (CCH) is a common complication of subarachnoid hemorrhage, and results from fibrosis in the subarachnoid space blocking the drainage of cerebrospinal fluid (CSF). Transforming growth factor (TGF)-β1 and TGF-β2 have been implicated in the development of CCH in rodent models; a UK study has now found that high TGF-β levels predict the development of CCH after subarachnoid hemorrhage in humans.

Douglas *et al.* measured TGF-β levels in CSF collected from twenty patients with acute hydrocephalus after subarachnoid hemorrhage, and compared these levels with those from seven patients with chronic nonhemorrhagic hydrocephalus. Posthemorrhagic patients had significantly higher levels of total and active TGF-β1 and TGF-β2 than did nonhemorrhagic patients. Total TGF-β levels peaked 1–5 days after hemorrhage, and remained elevated compared with control values at all subsequent time points. Comparison with the trend in albumin levels ruled out rebleeding as a cause of consistently elevated TGF-β levels. In total, 10 patients with subarachnoid hemorrhage went on to develop CCH, and these patients had significantly higher TGF-β1 and TGF-β2 levels over days 1–9 after hemorrhage than those who did not develop CCH.

The authors conclude that elevated TGF-β levels in the CSF after subarachnoid hemorrhage are potential predictors of CCH and may indicate a need for early therapeutic intervention.

Original article Douglas MR *et al.* (2008) High CSF TGFβ levels after subarachnoid haemorrhage: association with chronic communicating hydrocephalus. *J Neurol Neurosurg Psychiatry* [doi:10.1136/jnnp.2008.155671]

Methylphenidate improves cognitive function during rehabilitation after TBI

Methylphenidate, a neural stimulant often used to treat attention-deficit hyperactivity disorder, can help to improve attention in patients who are undergoing rehabilitation after traumatic brain injury (TBI), a new study suggests.

Willmott and Ponsford assessed the efficacy of methylphenidate in improving different features of attention (sustained attention, working memory, strategic control, and speed of processing) in 40 patients with moderate to severe TBI (mean time since injury 68 days). Following an initial assessment, patients were randomly assigned to receive 3 days of methylphenidate at a dose of 0.3 mg/kg (benchmark dose) and 3 days of placebo over a 2-week inpatient rehabilitation period. Attention was measured during each therapy session by a battery of tests, and a behavioral rating scale.

Compared with placebo administration, treatment with methylphenidate was associated with a significant improvement in speed of information processing. The greatest response to the study drug was observed in the patients with the greatest injury severity and slowest baseline processing speed. Patients' performance in the domains of working memory and strategic control did not show notable improvement when methylphenidate was received rather than placebo.

The authors propose further trials to assess the benefits of methylphenidate treatment over an extended duration as an adjunct to rehabilitation therapy for patients with TBI.

Original article Willmott C and Ponsford J (2008) Efficacy of methylphenidate in the rehabilitation of attention following traumatic brain injury: a randomized, crossover, double-blind, placebo controlled inpatient trial. *J Neurol Neurosurg Psychiatry* [doi:10.1136/jnnp.2008.159632]