REFERENCES

- 1 Nirmalanathan N, Holton JL, Hanna MG. Is it really myositis? A consideration of the differential diagnosis. *Curr Opin Rheumatol* 2004;**16**:684–91.
- 2 Tidball JG, Wehling-Henricks M. Damage and inflammation in muscular dystrophy: potential implications and relationships with autoimmune myositis. *Curr Opin Rheumatol* 2005;**17**:707–13.
- 3 Dalakas MC, Hohlfield R. Polymyositis and dermatomyositis. *Lancet* 2003;**362**:971–82.
- 4 Manzur AY, Kuntzer T, Pike M, et al. Glucocorticoid corticosteroids for Duchenne muscular dystrophy. *Cochrane Database Syst Rev* 2004;**2**:CD003725.
- 5 Ikezoe K, Ohshima S, Osoegawa M, et al. Granulysin expression in polymyositis and inclusion body myositis. *J Neurol Neurosurg Psychiatry* 2006;**77**:1187–90.
- 6 Bonifati DM, Witchel SF, Ermani M, et al. The glucocorticoid receptor N363S polymorphism and steroid response in Duchenne dystrophy. *J Neurol Neurosurg Psychiatry* 2006;**77**:1177–9.

Head injury

Patients after a head injury face an uncertain long-term future

S Fleming

Long-term changes in patients after head injury: for better or for worse?

After a head injury, it is sometimes assumed that once the first 2–3 years of recovery have passed, any impairment and disability remaining is fairly fixed. There will be little further improvement and in the unlikely event of any subsequent deterioration, the clinician should expect to be able to find a specific cause—for example, hydrocephalus—for the decline. However, longer-term follow-up studies suggest that in fact a fair proportion of patients change, some for the better and some for the worse.

The last time the Journal considered this issue was in 2003.¹ Millar *et al*² found that at 18 years follow-up after a head injury, twice as many patients had deteriorated (32%) as improved (15%) compared with how they were 6 months after the injury. There was no evidence that a biological marker, APOE ε4 status, could predict who would deteriorate. Since then, another group from Glasgow, again using the Glasgow Outcome Scale, has compared disability at a year after injury with that about 5 years later.³ Most patients had mild head injury. At follow-up, using a conservative estimate of change, as many had deteriorated (12%) as had improved (13%). Those who deteriorated were more depressed and anxious, had lower self-esteem and had more problems with alcohol.

Neuropsychological test performance can also be used to measure change over time. A recent study compared scores on tests of memory and IQ at first assessment, in most cases within 2 years after the injury, with test performance almost 30 years later. In more than half the cases the patients had deteriorated.⁴ Men and those who were older when injured were more at risk. On the other hand, Wood and Rutherford⁵ (*see p 1180*) using very similar methods come to a more optimistic conclusion. On the whole the patients' scores on measures of IQ at 16-year follow-up were better than those within a few years after injury. More patients improved than deteriorated. Excluding those who were first assessed within 2 years of injury made no difference. Thus, there was no evidence that the good outcome was simply because of continuing spontaneous recovery early after the first assessment. About half the patients had their first assessment as part of a medicolegal assessment for compensation. Perhaps because they were claiming compensation they had underperformed when first assessed and this explained why they did better when retested many years later. However, in a separate analysis, the authors found no effect of status at first assessment, medicolegal versus routine NHS clinic, on the outcome.⁶

Wood and Rutherford's study is not the first to suggest that the long-term outlook is good. Across all studies the evidence is ambiguous and conflicting.¹ It is difficult to discern any convincing explanations for the differences between studies. It has been suggested that cohorts recruited from rehabilitation units may do better, and that the observed outcome in studies with a high drop out rate is also likely to be better. Other factors to be considered are the age of the cohort when injured, the length of the follow-up period and the method used to reliably detect change over time. For the time being, the evidence suggests that in those with milder injuries adverse psychosocial factors are associated with deterioration. For those with more severe injuries who deteriorate, it will be interesting to see if biological effects are found.

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REFERENCES

- 1 Brooks N. Mental deterioration late after head injury—does it happen? *J Neurol Neurosurg Psychiatry* 2003;**74**:1014.
- 2 Millar K, Nicoll JAR, Thornhill S, et al. Long term neuropsychological outcome after head injury: relation to APOE genotype. *J Neurol Neurosurg Psychiatry* 2003;**74**:1047–52.
- 3 Whithall L, McMillan TM, Murray GD, et al. Disability in young people and adults after head injury: 5–7 year follow up of a prospective cohort study. *J Neurol Neurosurg Psychiatry* 2006;**77**:640–5.
- 4 Himanen L, Portin R, Isoniemi H, et al. Longitudinal cognitive changes in traumatic brain injury: a 30-year follow-up study. *Neurology* 2006;**66**:187–92.
- 5 Wood RL, Rutherford NA. The long term impact of head trauma on intellectual abilities: a 16 year outcome study. *J Neurol Neurosurg Psychiatry* 2006;**77**:1180–4.
- 6 Wood RL, Rutherford NA. The effect of litigation on long term cognitive and psychosocial outcome after severe brain injury. *Arch Clin Neuropsychol* 2006;**21**:239–46.