TRAUMATIC BRAIN INJURY

CT scan does not predict outcome of mild traumatic brain injury

Strong determinants of poor outcome following mild traumatic brain injury (TBI) are currently controversial. Although evidence-based guidelines recommend acute head CT examination, recent data indicate that alternative factors, such as age and sex, are stronger predictors. New findings, published by researchers from Sweden in the *European Journal of Neurology*, have now confirmed that CT scans are poor predictors of clinical outcome following mild TBI.

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Marianne Lannsjö and colleagues conducted a prospective, national cohort study involving 1,262 patients from Sweden with mild TBI—measured as a Glasgow Coma Scale score of 15. All patients received acute head CT examination at the time of trauma. Patients were then followed up at 3 months using both a postal questionnaire to assess symptom outcomes, including somatic, cognitive, audiovisual and emotional factors, and the Glasgow Outcome Scale Extended (GOSE) score, an 8-point score that measures global function. Poor patient outcome was defined as self-reporting of

more than three symptoms and a GOSE score of 1–6.

Of the 1,262 patients, only 52 (4%) had relevant or suspected pathological findings according to CT scan. “Our most striking observation was the lack of an association between CT scan pathology and clinical outcome at 3 months in terms of both self-reported symptoms and global function,” reports Lannsjö. No association was identified between CT scan pathology and self-reported symptoms either in total or with regard to the individual somatic, cognitive, emotional or audiovisual factors.

By contrast, patient age and sex were significantly associated with clinical outcome. Considerably fewer men (751 patients) than women (511 patients) self-reported more than three symptoms at 3 months. Furthermore, global function was better, on average, in the men than the women. The mean age of patients in the study was 30 years; researchers found that patients over 30 years of age tended to exhibit less-favourable outcomes than those aged under 30 years with respect to both symptoms and GOSE score.

The strengths of this study include the large size of the cohort and the 97% questionnaire response rate. Limitations are that the study design did not take into account patient comorbidities, or

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intervening events or interventions during the 3-month follow-up period.

“Future studies will focus on more-sensitive methods than CT scan, including MRI and functional imaging, for detecting relevant structural or functional brain abnormalities,” explains Lannsjö. “These techniques will, hopefully, advance our ability to predict outcome in patients with mild TBI and promote the generation of guidelines to help clinicians manage this large group of patients, who need more than acute management.”

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Original article Lannsjö, M. *et al.* Does head CT scan pathology predict outcome after mild traumatic brain injury? *Eur. J. Neurol.* doi:10.1111/j.1468-1331.2012.03813.x