Identifying neurocognitive deficits in adolescents following concussion.

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Source
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Abstract

OBJECTIVES:
This study of concussed adolescents sought to determine if a computer-based neurocognitive assessment (Immediate Postconcussion Assessment and Cognitive Test [ImPACT]) performed on patients who present to the emergency department (ED) immediately following head injury would correlate with assessments performed 3 to 10 days postinjury and if ED neurocognitive testing would detect differences in concussion severity that clinical grading scales could not.

METHODS:
A prospective cohort sample of patients 11 to 17 years of age presenting to the ED within 12 hours of a head injury were evaluated using two traditional concussion grading scales and neurocognitive testing. ED neurocognitive scores were compared to follow-up scores obtained at least 3 days postinjury. Postconcussive symptoms, outcomes, and complications were assessed via telephone follow-up for all subjects.

RESULTS:
Sixty patients completed phone follow-up. Thirty-six patients (60%) completed follow-up testing a median of 6 days postinjury. Traditional concussion grading did not correlate with neurocognitive deficits detected in the ED or at follow-up. For the neurocognitive domains of verbal memory, processing speed, and reaction time, there was a significant correlation between ED and follow-up scores trending toward clinical improvement. By 2 weeks postinjury, 23 patients (41%) had not returned to normal activity. At 6 weeks, six patients (10%) still had not returned to normal activity.

CONCLUSIONS:
Immediate assessment in the ED can predict neurocognitive deficits seen in follow-up and may be potentially useful to individualize management or test therapeutic interventions. Neurocognitive assessment in the ED detected deficits that clinical grading could not and correlated with deficits at follow-up.

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