

An Independent Inter- and Intraobserver Agreement Evaluation of the AOSpine Subaxial Cervical Spine Injury Classification System.

Julio Urrutia; Tomas Zamora; Ratko Yurac; Mauricio Campos; Joaquin Palma; Sebastian Mobarec; Carlos Prada

Abstract

STUDY DESIGN: An agreement study.

OBJECTIVE: The aim of this study was to perform an independent interobserver and intraobserver agreement assessment of the AOSpine subaxial cervical spine injury classification system.

SUMMARY OF BACKGROUND DATA: The AOSpine subaxial cervical spine injury classification system was recently described. It showed substantial inter- and intraobserver agreement in the study describing it; however, an independent evaluation has not been performed.

METHODS: Anteroposterior and lateral radiographs, computed tomography scans, and magnetic resonance imaging of 65 patients with acute traumatic subaxial cervical spine injuries were selected and classified using the morphologic grading of the subaxial cervical spine injury classification system by 6 evaluators (3 spine surgeons and 3 orthopedic surgery residents). After a 6-week interval, the 65 cases were presented to the same evaluators in a random sequence for repeat evaluation. The kappa coefficient (κ) was used to determine the inter- and intraobserver agreement.

RESULTS: The interobserver agreement was substantial when considering the fracture main types (A, B, C, or F), with $\kappa=0.61$ (0.57-0.64), but moderate when considering the subtypes: $\kappa=0.57$ (0.54-0.60). The intraobserver agreement was substantial considering the fracture types, with $\kappa=0.68$ (0.62-0.74) and considering subtypes, $\kappa=0.62$ (0.57-0.66). No significant differences were observed between spine surgeons and orthopedic residents in the overall inter- and intraobserver agreement, or in the inter- and intraobserver agreement of specific A, B, C, or F type of injuries.

CONCLUSION: This classification allows adequate agreement among different observers and by the same observer on separate occasions. Future prospective studies should determine whether this classification allows surgeons to decide the best treatment for patients with subaxial cervical spine injuries.