Left mediastinal width and mediastinal width ratio are better radiographic criteria than general mediastinal width for predicting blunt aortic injury

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摘要

Abstract

Background: General mediastinal width, left mediastinal width, and mediastinal width ratio were compared as radiographic predictors of aortic injury. Methods: A retrospective study investigated the chest radiographs of 51 patients admitted to a level 1 trauma center during a 6-year period for a thorough survey of aortic injury. Mediastinal width (MW ≥ 8 cm), left mediastinal width (LMW ≥ 6 cm), mediastinal width ratio (MWR ≥ 0.60), and a combination of LMW and MWR were compared as predictors of aortic injury. The cutoff points were predetermined by receiver-operator-curve to accommodate 100% sensitivity for each criterion. Results: Of the 51 patients, 21 had aortic injuries and 30 had normal imaging studies. All criteria had 100% negative predictive value. The specificities and positive predictive values, respectively, were 13.3% and 44.7% (MW), 40.0% and 53.8% (LMW), 43.3% and 55.3% (MWR), and 66.7% and 67.7% (combined LMW and MWR). The positive likelihood ratio of aortic injury was 3.00 when LMW was 6 cm or more and MWR was 0.60 or more. Conclusions: Both an LMW of 6 cm or more and an MWR of 0.60 or more are better radiographic criteria than an MW of 8 cm or more for predicting blunt aortic injury. Trauma patients with positive test results based on the combined LMW and MWR criteria should proceed immediately to aortography or helical computed tomography.