

ULTRASOUND VERSUS COMPUTED TOMOGRAPHY MEASUREMENT OF PUBIC SYMPHYSIS WIDTH IN TRAUMA PATIENTS

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Background

Pelvic injuries are among the most deadly trauma related lesions. A widened pubic symphysis (PS) is indicative of an open book pelvic fracture associated with high risk of retroperitoneal bleeding.



Ultrasound (US) assessment is a non-invasive and rapid technique to evaluate PS and could be an accurate method to detect PS diastasis. This evaluation could be an extension of FAST exam during primary survey, even in the pre-hospital setting.

Our aim is to compare ultrasound PS measurement with the pelvic computed tomography (CT).

Method

Adults admitted to our Emergency Department with activation of Trauma Team were enrolled.

US was performed by placing 3-6 MHz Convex transducer in transverse orientation on PS (identified by palpation) with an approximately 30° caudal scanning plane.

All US measurements were made by a member of Trauma Team, trained on basic US course. The mean of three measures was recorded.

US measurements were compared with PS width on CT images by the Passing-Bablok (PB) test for nonparametric regression.

Results

Eighteen consecutive trauma patients were enrolled; 16 men and 2 women, with an average age of 39,9 years (SD 18,9).

The mean PS width of US and CT measures were respectively 6,8 mm (SD 1.3) and 4,7 mm (SD 1,9).

The estimates of the PB intercept and slope with relative confidence interval (95%CI) were respectively : -1.69 (-5.24;11.63) and 0.95 (-1.09;1.57).

This analysis suggests a correlation between the two methods.

Conclusion

US examination seems to have good agreement with CT exam for identification of PS widening.

Extension of FAST exam including this evaluation could be a rapid diagnostic tool for pelvic injury identification and in pre-hospital setting could improve the appropriateness of patients centralization.

However, the limitation is the small number of patients, since these are preliminary data of a larger study.

