The Reliability of the Pre-hospital Physical Examination of the Pelvis: A Retrospective, Multicenter Study

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Abstract

**Introduction** This study assesses the incidence of missed pelvic injuries in the pre-hospital setting.

**Methods** All blunt trauma patients (ISS ≥ 9) with pre-hospital suspicion of and/or radiologically proven pelvic fracture documented in the TraumaRegister DGU® (TR-DGU) of the German Trauma Society DGU (2002–2011) were identified and retrospectively analyzed. Patients with a missed pelvic injury in the pre-hospital period were compared with those who were correctly identified.

**Results** Of the 11,062 patients included, 7201 patients (65.1 %) had a pelvic fracture diagnosed on hospital admission. In 44.1 % (n = 3178) of the patients with confirmed pelvic fracture, no pelvic injury was suspected preclinically (overall sensitivity of the pre-hospital pelvic examination: 55.9 %). For type B and C pelvic fractures, 40.5 % and 32.3 %, respectively, were not suspected in the pre-hospital environment. Patients with a not-suspected pelvic injury were significantly more likely to have been involved in a motor vehicle accident, to have a GCS ≤ 8, to be intubated at the scene and to have an ISS of ≥25 (all p < 0.05). Independent risk factors for missing a pelvic injury in the pre-hospital setting were an AIS head ≥3, a GCS ≤ 8 and age above 60 years. The presence of hypotension (SBP ≤ 90 mmHg) as well as a high overall injury severity (ISS ≥ 25) decreased the risk of missing a pelvic injury.

**Conclusion** A significant proportion of severe pelvic fractures type B and C were not suspected in the pre-hospital setting. Therefore, in severely injured blunt trauma patients, a mechanical pelvic stabilization in the pre-hospital environment, irrespective of the findings of the physical examination of the pelvis, should be considered.

**Introduction**

The early detection of pelvic fractures plays an important role in the initial management of multiply injured trauma patients. The available data uniformly indicate that a

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