Focus on high energy pelvic trauma

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Published online: 12 March 2018

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Management of high energy pelvic trauma is an interdisciplinary task. The early clinical picture of patients with pelvic trauma is a combination of haemodynamic and osteo-ligamentar instability. Despite an efficient emergency management, patients with a pelvic fracture will have a different course during their hospital stay when compared with patients with an equally high ISS without pelvic fracture. Almahmoud et al. showed that there was a longer length of stay in the intensive care unit and a longer total length of stay in the hospital. Inflammatory biomarkers and clinical parameters were significantly different as well [1]. As in all severely injured patients, resuscitation is focused on the preservation of airways, breathing and circulation. In case of pelvic ring disruption with haemodynamic instability, provisional stabilization of the pelvic ring is used in a great majority of patients using pelvic binders, pelvic clamp and external fixation. When logistical requirements are met, operative fixation of the disrupted posterior pelvic ring with iliosacral screws can be performed. Acker et al. present a series of 108 unstable pelvic injuries, of which 50 were treated with primary screw fixation [2]. No differences were found between the primary and delayed treatment groups for what concerns technical outcome measures and complication rate. Immediate screw fixation seems to be a valid alternative of delayed fixation. An unsolved question remains which type of pelvic fractures need operative fixation and which can be treated non-operatively. Höch et al. contributes to the discussion with a retrospective study on 71 patients, who suffered a lateral compression injury [3]. Thirty-five patients were treated non-operatively, 36 operatively. The amount of anterior fracture dislocation was higher in the operatively treated group. There was a significantly higher complication rate in the group, which was treated operatively. After at least 1-year follow-up, there was no difference regarding

pain or quality of life. The results of this study underline the need of a critical analysis and precise decision-making in lateral compression injuries. Perhaps, isolated lateral compression pelvic injuries with a limited anterior fracture displacement do not need surgical therapy. The fourth and fifth manuscript of this focus on concern stabilization techniques of the anterior pelvic ring. Godinsky et al. compare stability of locked versus non-locked symphyseal plating of unstable pelvic ring fractures [4]. They used an unstable pelvic ring model with a iliosacral dislocation and symphysis pubis disruption. The iliosacral dislocation was fixed with an iliosacral screw. Antero-posterior displacement at the pubic symphysis was larger in the non-locked symphyseal plating than in locked symphyseal plating. Medio-lateral gap and superior–inferior displacement were not significantly different. The higher postoperative stability is an important advantage: it protects against implant loosening or failure and secondary fracture displacement. McLachlin et al. tested four different anterior pelvic fixation methods in a vertically unstable pelvic fracture without posterior fixation [5]. The bicortical, fully threaded 6.5 mm retrograde transpubic screw provided the highest stability with the smallest displacement in the anterior and posterior pelvic ring. As insertion is minimally invasive and the construct most stable, the technique should be used more often in superior pubic ramus fractures above the obturator foramen.

This focus on provides new insights in the specific characteristics of high-energy pelvic ring lesions in a polytrauma setting. Emergency screw fixation of posterior pelvic ring disruptions seems as safe as delayed screw fixation. Indication for surgery of lateral compression injuries requires a critical analysis of pros and cons. Locked symphyseal plate fixation obtains higher stability than non-locked fixation, which adds to the overall postoperative stability of the pelvic ring. Bicortical retrograde transpubic screw fixation with a large fragment screw is more stable than with a small fragment screw or with plate and screw fixation. External fixation is far less stable. This minimal-invasive fixation method can be recommended in mid-superior pubic ramus fractures. This “focus on” provides practical knowledge for

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better care of the pelvic trauma patients. We hope that you enjoy reading and take an important message home for your daily practice.

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