The incidence of injury to the urologic system after trauma is about 10%.1-2 Blunt trauma followed by traffic accidents and during sports comprise 90% of the etiologies.3 In addition, the rate of penetrating injuries is increasing, especially in urban areas.4 The kidney is the most common urologic organ to be injured, followed by urinary bladder and the urethra. Isolated urologic trauma is rare; therefore, it is important to consider possible potential urological injury in the multiple trauma patients. Renal injury happens in 8%-10% of all blunt and penetrating abdominal injuries and is frequently managed conservatively.2 However, it is important to diagnose renal pedicle injury or laceration of ureteropelvic junction with potential retroperitoneal hemorrhage or urinoma. Therefore, the optimal management of major blunt and penetrating renal injuries remains controversial and deserves further evaluation.5 In this issue, Dr. Yang and colleagues6 have done a good job of finding the factors predictive of surgery and mortality in patients with renal injury.

Sudden deceleration or crash injury may induce contusion, laceration, rupture, or even total disintegration or disruption of the renal parenchyma. Damage of the renal pedicle through shearing forces may range from a tear leading to thrombosis of a renal artery or vein to partial or complete transection of the renal hilum.5 The accepted classification system for blunt renal injuries uses the grading system of the American Association for the Surgery of Trauma (AAST).5 In their article, Yang and others6 conclude that Injury Severity Score (ISS) ≥ 16 and Renal Injury Scale (RIS) ≥ 4 are predictive factors for operation, and that higher injury severity (ISS ≥ 16) and lower conscious level (Glasgow Coma Scale (GCS) < 8) are significantly associated with mortality after renal trauma.6 However, the authors could give more details about this scale and describe the numbers of patients in different RIS scales and their prognoses, because they want to find the predictive factors for surgery and mortality after renal trauma. In this way, the readers could get more information from the article. Recent papers have reported the rate of penetrating renal injury is increasing.5 In addition, iatrogenic injury by interventional procedures, such as renal biopsies under sono or computed tomography (CT) guidance or percutaneous nephrostomies, are other causes of penetrating renal trauma.5 In this paper, the authors did not mention about iatrogenic injury of kidney6; they could give some comments in the discussion, which would inform the readers about this type of renal injury and suggest that they should pay attention to this issue.

Hematuria is a typical sign of renal trauma despite its poor correlation with severity of injury.7 Ureteropelvic junction trauma and renal pedicle injury can occur without microscopic or gross hematuria in 25%-50% of patients.8 Traditional evaluation of renal trauma by imaging includes plain film radiography and intravenous urography (IVU). However, IVU is no longer routinely performed in the emergency room due to poor sensitivity and specificity.5,9 Ultrasonography is less sensitive for identifying solid organ injuries and retroperitoneal free fluid compared with CT.10 Angiography is rarely performed, but it is a useful problem solving modality in renal artery injury. Furthermore, it allows immediate transcatheter embolization if active arterial bleeding, a pseudoaneurysm or an arteriovenous fistula are found.5 Therefore, CT is the standard tool for patients with suspected renal trauma, which can accurately demonstrate the extent of renal injury, perirenal hemorrhage, retroperitoneal hemorrhage, extravasations of urine, urinoma, pedicle injury, and associated solid-organ injuries.11 Additionally, a late excretory-phase CT scan is useful to evaluate the extent of ureteropelvic disruption. If there is only a partial tear, then nephrostomy or ureteral stenting (double-J) can be suggested, but complete transection or severe tear of ureteropelvic junction requires immediate or delayed surgery.5 Maybe Yang and coworkers6 could have some discussion about the use of angiography and nephrostomy in such patients.

A hemodynamically unstable patient due to renal hemorrhage or all penetrating injuries should be managed surgically, whatever the mechanism of injury.12 But, some authors5,13 reported successful treatment of selected cases of penetrating injury by embolization or nephron-sparing surgery. Hemodynamically stable patients with AAST Grade 3 or higher should be considered to undergo formal angiography followed by embolization if active bleeding is noticed, which could reduce renal parenchyma injury with minimal complications.14 In addition, Lee and others15 reported that severely injured kidney could be preserved by Vicryl mesh instead of nephrectomy in an animal study. Maybe Yang and colleagues6 could describe more about the types of surgery in patients with renal trauma such as partial nephrectomy in the discussion, which might make the paper more informative and raise the interest of readers.
Yang and others try to find the predictive factors for operation and mortality following renal trauma by retrospective chart review, and the conclusions are informative and valuable. However, the case numbers were relatively low. Furthermore, it is difficult to conduct a prospective study to evaluate hemodynamically stable patients with AAST Grade 3 or higher of renal trauma either by conservative treatment or surgical intervention because of ethical consideration. In addition, patients with higher grade of renal injury might have higher ISS and higher chance of associated injuries, which would confound the predictive factors for patients with pure renal trauma. Therefore, how to manage patients with stable vital signs and AAST Grade 3 or higher of renal injury remains debatable, and more cases and longer follow-up are needed to evaluate this challenging and important issue.

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