

Urological Consultation in Patients with Renal Trauma can Decrease Rates of Nephrectomies.

Nathan Clark, Rodrigo Donalisio da Silva, Kevin Van, Cole Weidel, Sharon White, Dledra Gustafson, Fernando J Kim.

Abstract

Introduction/Background: Renal traumas are initially managed by the trauma team in the emergency department (ED). The objective of this study was to evaluate if urological consultation can improve outcomes in renal trauma patients. Furthermore, we will evaluate for disparities in the incidence and care for individuals of varied ethnic backgrounds who suffer renal trauma.

Methods/Materials: Data was collected from a level 1 trauma center (Denver Health Medical Center, Denver, CO) from January 2008 to July 2020. Patients diagnosed with renal trauma were included in the study and divided into two groups: urological consultation or no urological consultation. Patient characteristics and outcomes were compared between the groups.

Results: A total of 463 patients were treated for renal trauma and 41% received urological consultation. The urological consultation group had more males ($p=0.009$) and high grade renal trauma (abbreviated injury score (AIS) 3-5, $p<0.001$). Patients with signs of hypovolemic shock (systolic blood pressure (SBP) ≤ 90 mm Hg, $p=0.019$); pulse ≥ 100 beats per minute (bpm), $p<0.001$) were less likely to receive urological consultation. Overall survival rate was higher in patients who received a urological consultation (98%) compared to those who did not (86%, $p<0.001$). (Figure 1a) Moreover, patients who had high grade renal trauma ($p=0.008$) or high injury severity score (ISS ≥ 27 , $p<0.001$) were more likely to survive. (Figure 1b) Nephrectomy occurred more often in patients with SBP ≤ 90 mm Hg ($p<0.001$), had high grade renal trauma ($p<0.001$), or underwent trauma operation on the day of admission. (Figure 4)

Patients with AIS grade 4 or 5 renal trauma were less likely to undergo nephrectomy when urology was consulted ($p<0.001$). (Figure 2)

Individuals belonging to ethnic minorities were significantly more likely to have sustained penetrating trauma compared to their white counterparts. Urology was consulted less often for penetrating trauma than blunt ($p=0.043$). Overall, there was no difference in consultation rate between white and minority patients ($p=0.501$)

Conclusions: Patients with high grade renal trauma that received urological consultation were less likely to have nephrectomy despite severe ISS and AIS compared to patients without urologic consultation. Moreover, this group also had higher survival rates than those managed without urology consultation, even after controlling for shock, AIS, and ISS. Nephrectomy was avoided more often with urology input and partial nephrectomy was able to be achieved only with the involvement of urology. Therefore, we believe that urology consultation should be strongly considered in the event of renal trauma, irrespective of the severity of overall condition.

Key words: Renal trauma, conservative management, urological consultation, outcomes, surgery outcomes