**TRAUMA CONUNDRUM : Damage-Control Resuscitation in an End-Stage Renal Disease Patient.**

Nik Shaheeda M.1 , Chan Wai Ying1, Muhammad Khidir Mohd Kamil.1

*1Emergency and Trauma Department, Teluk Intan, Hospital, Perak*

**Introduction**

Trauma patients with pre-existing end-stage renal disease (ESRD) are at a greater risk of morbidity and mortality. In a Canadian cohort of trauma patients with ESRD, the all-cause inhospital mortality was three times higher than in the non-CKD group. Special attention must be given to volume resuscitation because of their limited ability to excrete solutes and fluids.

**Case description**

A 51-year-old gentleman with underlying ESRD presented with severe abdominal pain following a motorcycle skid. He was tachypneic and hypoxic, with oxygen saturation of 95% on 3 L/min nasal cannula. He sustained class III hypovolemic hemorrhagic shock. A trauma survey revealed a suspected left simple hemothorax and blunt intraabdominal injury. Extended focused assessment sonography in trauma scan demonstrated free intraperitoneal fluid and left pleural effusion. He was resuscitated initially with a 500 ml crystalloid and a unit of safe O blood. However there was not much improvement. The ABC score was 3. A massive transfusion protocol (MTP) was activated, and a series of blood products were transfused along with intravenous tranexamic acid and calcium gluconate. The left intrathoracic was decompressed and drained only serous fluid. The surgical team was alerted for damage-control surgery. Intraoperatively, he sustained a grade IV splenic injury with an estimated blood loss of 7 L. The spleen was removed, and he was transfused with another cycle of MTP packages. Post-operatively, he was admitted to the intensive care unit. He developed peri-pancreatic hematoma that required drainage. He recovered well and was discharged three weeks later.

**Discussion**

Resuscitating ESRD patients poses several challenges. A diagnostic dilemma in an ESRD with preexisting intra-abdominal fluid collections and pleural effusion can be mistaken for free fluid or hemothorax following trauma. In this scenario, computed tomography is useful to discriminate between different types collections. Attention must be directed to volume resuscitation because urine output and blood gas parameters may be difficult to interpret. They often require invasive hemodynamic monitoring to accurately assess the response to treatment.

**Conclusion**

Modified trauma management strategies should be emphasized for patients with ESRD after major trauma as they are at higher risk of developing complications and mortality.

**Keywords**: damage-control resuscitation, end-stage renal disease, trauma.

**References**:

[1] Cachecho R, Millham FH, Wedel SK. Management of the trauma patient with pre-existing renal disease. Crit Care Clin. 1994 Jul;10(3):523-36. PMID: 7922736.

[2] Pratt R, Erdogan M, Green R, Clark D, Vinson A, Tennankore K. Outcomes of major trauma among patients with chronic kidney disease and receiving dialysis in Nova Scotia: a retrospective analysis. Trauma Surg Acute Care Open. 2021 Apr 13;6(1):e000672. doi: 10.1136/tsaco-2020-000672. PMID: 33907714; PMCID: PMC8051384.

[3] Kerschbaum M, Schurr LA, Riedl M, Mayr A, Weiß I, Klute L, Popp D, Pfeifer C, Ernstberger A, Alt V, Dendl LM. Clinical Value of CT for Differentiation between Ascites and Hemorrhage: An Experimental In-Vitro Study. J Clin Med. 2020 Dec 28;10(1):76. doi: 10.3390/jcm10010076. PMID: 33379240; PMCID: PMC7796251.