KSN 2019
Seoul, Korea · May 23 - 26

Abstract Type : Poster
Abstract Submission No. : PO-1511

Acute kidney injury (AKI) in obstructive uropathy

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Objectives: Urinary tract obstruction is one of the major causes of postrenal Acute Kidney Injury (AKI) and can be life threatening if not immediately corrected. The clinical manifestations of urinary tract obstruction are variable, but in many cases they appear in the form of hydronephrosis and percutaneous cystostomy (PCN) is performed to manage it. In general, the risk factors for postrenal AKI are not well known. In this study, we would like to study the risk factors of postrenal AKI in Korea.

Methods: This conducted a retrospective study to determine the risk factors of postrenal AKI at the individual level using data in 1,764 adult patients who underwent PCN due to urinary tract obstruction among patients admitted to three clinics of Korea University Medical Center from January 1, 2002 to August 16, 2018. We classified AKI according to KDIGO classification criteria and analyzed risk factors of AKI using logistic regression analysis.

Results: Among patients who underwent PCN, Hb ($p<0.001$), Hct ($p<0.001$) and Albumin ($p<0.001$) at the time of admission were significantly lower and ESR ($p=0.001$) was higher in postrenal AKI patient Group than in normal Cr patient Group. Postrenal AKI patients were more likely to be associated with men than women. (OR=1.437, p=0.003), In relation to underlying disease, postrenal AKI is associated with patients with Hypertension (OR=1.641, $p<0.001$), Ischemic Heart Disease (OR=2.523, p=0.013), Peripheral Arterial Obstructive Disease (OR=1.861, p=0.030), Heart Failure (OR=4.150, p=0.002) and cancer (OR=1.934, $p<0.001$). Risk factors related to postrenal AKI were total CO2 (OR=0.835, p=0.022), uric acid (OR=2.004, p=0.004), and albumin level (OR=0.190, p=0.017) at the time of admission and associated with Connective Tissue Disease (CTD) (OR=34.373, p=0.033) as a baseline disease.

Conclusions: Baseline metabolic acidosis, hyperuricemia, hypoalbuminemia and CTD comorbidity are major risk factors for AKI who experienced PCN.