KSN 2016 Abstract Submission

Acute Kidney Injury

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Clinical characteristics of acute kidney injury in patients with acute pyelonephritis-RIFLE criteria validation

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Background: The aim of this study is to investigate the incidence and clinical characteristics of acute kidney injury (AKI) based on the RIFLE criteria in acute pyelonephritis (APN) and evaluate the efficacy of computed tomography (CT)-based APN grades for predicting AKI.

Methods: From May 2007 to December 2009, we included 610 patients. We evaluated the incidence, clinical characteristics, and severity of AKI based on the RIFLE classification. Contrast-enhanced CT findings were divided into four grades according to renal parenchymal involvement: no renal parenchymal involvement, grade1; less than 25% involvement, grade 2; 25% or greater involvement but less than 50% involvement, grade 3; and 50% or greater involvement, grade 4. Non-enhanced CT findings were divided into two grades: no perirenal fat infiltration and ureteral wall edema, grade A; suspicious perirenal fat infiltration or ureteral wall edema, grade B.

Results: Patients who underwent contrast-enhanced CT (n=540) showed significantly different length of hospital stay (grade 1; 9±5, grade 2; 9±4, grade 3; 9±4, grade 4; 10±5, p=0.011) and it was higher in grade 4 than in grade 2 by Scheffe's post-hoc analysis. GFR levels were significantly different (70±27 vs 75±26 vs 73±23 vs 64±23, p=0.03) and it was lower in grade 4 than in grade 2 by Scheffe's post-hoc analysis. The occurrence of AKI was more frequent in upper grade of CT (p=0.000). In patients who underwent non-enhanced CT (n=70), grade of RIFLE was significantly different (2±1 vs 1±1, p=0.011) according to grade of CT.

Conclusion: APN severity and AKI based on the RIFLE criteria were found to worsen as CT-based APN grade increased. The findings suggest that APN grade as determined by CT is valuable predictor of clinical severity in patients with APN.

Keywords: Acute kidney injury, ACUTE PYELONEPHRITIS