KSN 2017 Abstract

KSN-17-P019

Acute kidney injury in the patients with alcoholic ketoacidosis and delta neutrophil index as a prognostic factor

Jae won YANG[1], Jun young LEE[1], Jae seok KIM[1], Seung-kuy CHA[2], Byoung geun HAN[1], *Seung ok CHOI[1]

[1]Internal Medicine, Yonsei University Wonju College of Medicine, Korea,South, [2]Physiology, Yonsei University Wonju College of Medicine, Korea,South

Objectives : Alcoholic ketoacidosis (AKA) is a serious condition having high mortality rate. AKA is commonly accompanied by acute kidney injury (AKI), and which could affect the clinical progress and prognosis of AKA. In the study, we aim to investigate clinical characteristics and the relationship of AKI with AKA.

Methods : We investigated retrospectively the 357 patients with AKA who visited the emergency department in Wonju Severance Christian Hospital from January 2004 to March 2014. We reviewed the clinical and laboratory data and estimated APACHE (acute physiology and chronic health evaluation) II and SOFA (sequential organ failure assessment) scores. In addition, we estimated DNI (delta-neutrophil index) which has been suggested as a promising biomarker for serious conditions including sepsis to evaluate the usefulness of it.

Results : In a total of 357 patients with AKA, 293 (82.1%) patients were diagnosed with AKI by KDIGO (kidney disease improving global outcome) criteria; 80 patients (22.4%) were classified as AKI stage 1, 70 patients (19.6%) as stage 2, and 143 patients (40.1%) as stage 3. When comparing APACHE-II and SOFA scores between the four groups (non-AKI vs. AKI-1 vs. AKI-2 vs. AKI-3), there were significant differences in the both scores representing that AKI is associated with clinical severity in AKA (11.1±6.8 vs. 13.2±6.2 vs. 19.4±8.3 vs. 22.5±8.4, $p<0.001$ / 3.6±2.7 vs. 4.5±2.9 vs. 7.3±3.8 vs. 9.5±3.9, $p<0.001$). When comparing biochemical markers between the groups, notable thing is that there was significant difference in DNI (2.3±5.4 vs. 4.5±6.6 vs. 7.1±7.9 vs. 11.1±12.1, $p<0.001$). In logistic regression analysis, the results showed that rhabdomyolysis (OR-odds ratio; 7.14, p=0.001), pancreatitis (OR 3.66, p=0.030), C-reactive protein (OR 1.59, 0.001), serum anion gap (OR 1.15, $p<0.001$), serum lactate (OR 1.10, 0.015) and mean arterial pressure (OR 0.98, p=0.038) were significant risk factors for incident AKI in AKA. Mortality was reported in 84 cases (23.6%), and the average duration from admission to death was 6.0±10.7 days. Major causes of death included uncontrolled metabolic acidosis (n=46, 54.8%), septic shock (n=26,

31.0%), and gastrointestinal tract bleeding (n=7, 8.3%). The mortality rate increased according to the advance in AKI stage (3.1 vs. 7.5 vs. 25.7 vs. 40.6 %, p<0.001).

Conclusions : Our study demonstrates that AKI is an important prognostic factor in AKA, and that rhabdomyolysis is the most significant predictors for the development of AKI in AKA. In addition, notable thing is that DNI used as a marker for sepsis could be also useful marker in AKA with AKI.

Keywords : Alcoholic ketoacidosis, Acute kidney injury, delta-neutrophil index