

NEW PROGNOSTIC MARKERS IN PATIENTS WITH GENTAMICIN-ASSOCIATED ACUTE KIDNEY INJURY

Authors: Andrei NICULAE, Ileana PERIDE, Cristiana DAVID, Daniela RADULESCU, Ileana Adela VACAROIU, Professor Ionel Alexandru CHECHERITA

Affiliation: Department of Nephrology and Dialysis, "St. John" Emergency Clinical Hospital; Clinical Department No. 3, "Carol Davila" University of Medicine and Pharmacy Bucharest, Romania

Introduction:

Acute kidney injury (AKI) is a frequent and sometimes devastating syndrome, with high costs for patients and health-care systems. It has multiple risk factors or causes. One of the most common causes of AKI is Gentamicin-nephrotoxicity. Elderly patients, who may have poorer renal reserve or be receiving concomitant nephrotoxic medications, are perceived to be at higher risk of gentamicin-associated AKI (GA AKI). The aim of our study is to find if there are prognostic markers that correlate with adverse outcome in patients with GA AKI.

Methods:

67 patients with GA AKI who were hospitalized in our Department between January 2012 and August 2016, were prospectively enrolled in this study. Patients with shock were excluded from our study. Age, gender and personal medical records were noted; serum potassium, sodium, bicarbonate, albumin, glycemia, creatinine, hemoglobin, NTproBNP (N terminal probrain natriuretic peptide), CRP (C-reactive protein) and blood urea nitrogen were measured at admission in all patients. They were divided in 2 groups: group A (those who required hemodialysis) and group B (without the need of hemodialysis). We analyzed statistically if any of these parameters correlates with days of hospitalization, the number of hemodialysis sessions and rate of survival.

Results:

42 (62.68%) patients required hemodialysis (group A) and 15 did not require hemodialysis (22.38%; group B). The average length of stay for patients from group A was 10.6 days and 6.7 days for those in group B ($p < 0.001$). In both groups, A (67%) and B (55%) it was observed that the number of hospitalization days directly correlates with low serum albumin, the CRP and NTproBNP value, age > 75 years old, male gender, chronic kidney disease (CKD) and diabetes history ($p < 0.001$). Average number of HD sessions until AKI recovery was 7.5 (group A). A high number of HD sessions correlates as well with NTproBNP value, age > 75 years old and CKD history. Statistically, it does not correlate with serum albumin, gender, CRP value. 6 patients died (5 from group A and 1 from group B). 5 (4 from group A and 1 from group B) of them presented the following features: high NTproBNP values, low serum albumin levels, age > 75 years old, diabetes and CKD history.

Conclusions:

Elevated values of NTproBNP, CRP, low serum albumin levels, age > 75 years old, male gender, CKD and diabetes history in patients with GA AKI are associated with a longer hospitalization period. Slow recovery (the number of HD sessions) is correlated with NTproBNP serum level, age > 75 years old, and personal medical record of CKD. Therefore, the above mentioned features (NTproBNP, serum albumin, CRP, age > 75 years, male gender and personal medical history of CKD and diabetes) could be considered from the beginning markers of worse prognosis in patients with GA AKI, but further and larger clinical trials are required.