



# PREVALENCE AND PROGNOSTIC VALUE OF CARDIORENAL SYNDROME IN PATIENTS WITH ACUTE CARDIAC DISEASE

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## Background and Objective

- Impaired renal function is a common finding in patients with cardiac diseases, confers an adverse prognosis in this population.
- Acute kidney injury (AKI) is associated with significant morbidity and mortality.
- The aim of the study was to evaluate the incidence, phenotypes and prognostic value of cardiorenal interrelations in patients with acute cardiac diseases.

## Inclusion criteria

Patients admitted in emergency department (n=278 with acute decompensation of heart failure (ADHF) and n=288 with non-ST-elevation acute coronary syndrome (NSTEMI-ACS)).

## Methods

- Detection and classification of acute kidney injury (AKI) according KDIGO Guidelines 2012<sup>1</sup>
- Detection and classification of chronic kidney disease (CKD) according KDIGO Guidelines 2012<sup>2</sup>
- AKI phenotypes depending on time of development (community-acquired or in-hospital), persistence (transient or persistent), history of CKD (AKI de novo or AKI on CKD) were identified.
- Mann-Whitney test was performed. P <0.05 was considered statistically significant

<sup>1</sup> KDIGO Clinical practice guideline for acute kidney injury. Kidney Int. 2012; 2(1): 1–141.

<sup>2</sup> KDIGO 2012 Clinical Practice Guideline for the Evaluation and Management of Chronic Kidney Disease. Kidney Int (Suppl.) 2013;3:1-150

## Study population (n=566)

| Parameters                                   | Value        |
|--|--------------|
| Male, n (%)                                  | 260 (46)     |
| Age, years (M±SD)                            | 71±11        |
| Smokers, n (%)                               | 159 (28)     |
| Arterial hypertension, n (%)                 | 515 (91)     |
| Diabetes mellitus, n (%)                     | 159 (28)     |
| Previous myocardial infarction, n (%)        | 255 (45)     |
| Previous hospitalizations with ADHF, n (%)   | 311 (55)     |
| Atrial fibrillation, n (%)                   | 198 (35)     |
| Chronic obstructive pulmonary disease, n (%) | 170 (30)     |
| Anemia, n (%)                                | 187 (33)     |
| Blood pressure, mmHg (M±SD)                  | 142±30/83±16 |
| Ejection fraction <35%, n %                  | 85 (15)      |

## Results

- Different cardiorenal interrelations were revealed in 64.7% of patients.
- Incidence of CKD in all patients, patients with ADHF and NSTEMI-ACS was 45.8, 46.5 and 45%.
- CKD was first diagnosed in 61% of patients.
- Incidence of AKI in all patients, patients with ADHF and NSTEMI-ACS was 40, 43.5 and 37.2% respectively. AKI stage 1 was prevalent. Serum creatinine changes in range 10-50% during hospitalization which do not meet AKI criteria were revealed in 27.6% of patients (Fig. 1).
- Patients with vs without AKI had higher rate of CKD stage 4 (17.4 vs 3.6%, p<0.001), lower rate of CKD stage 3a (23.1 vs 47.8%, p<0.001).
- Community-acquired AKI, AKI on CKD and persistent AKI were found in 44.7, 53.1 and 48.2% of patients respectively (Fig. 2).
- In-hospital mortality was higher in patients with vs without AKI (14.9 vs 3.6%, p<0.001) and was the highest in patients with in-hospital persistent AKI de novo, community-acquired persistent and transient AKI on CKD vs without AKI (30.8, 35 and 19.4%, p<0.05) (Fig. 3).

Figure 1. Prevalence and variants of cardiorenal interrelations

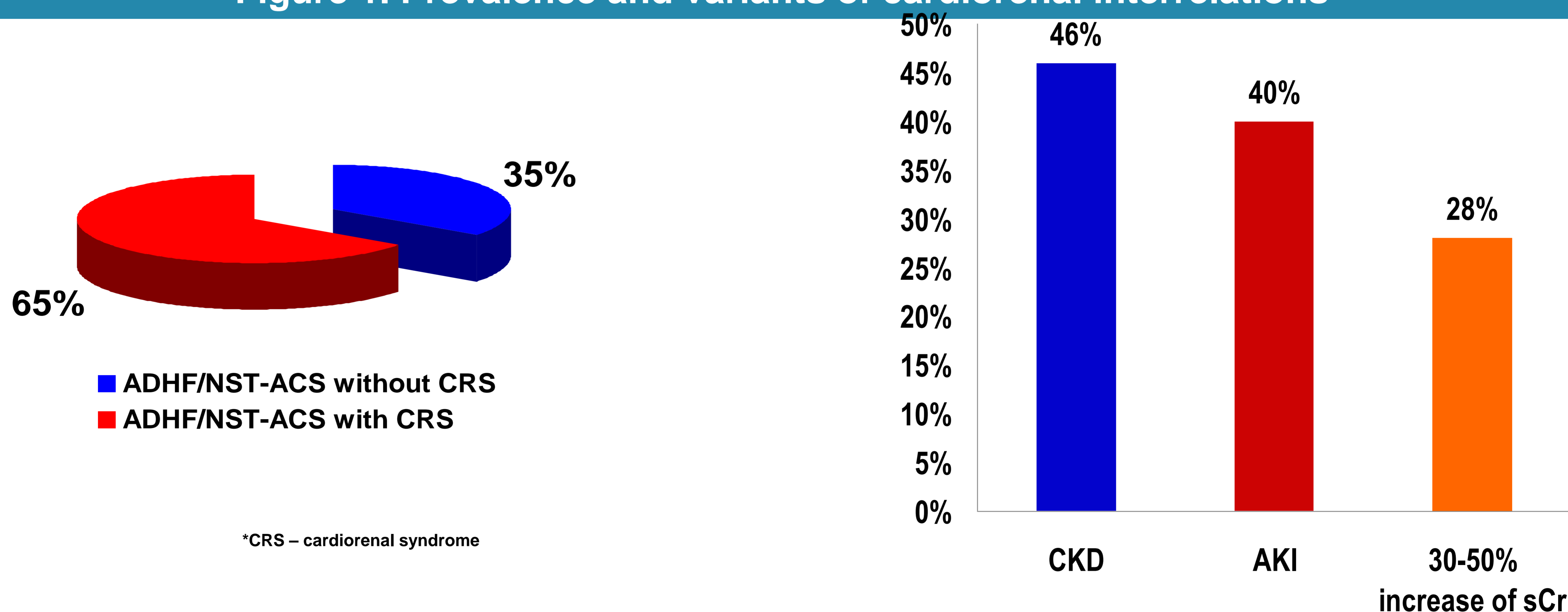


Figure 2. Phenotypes of AKI

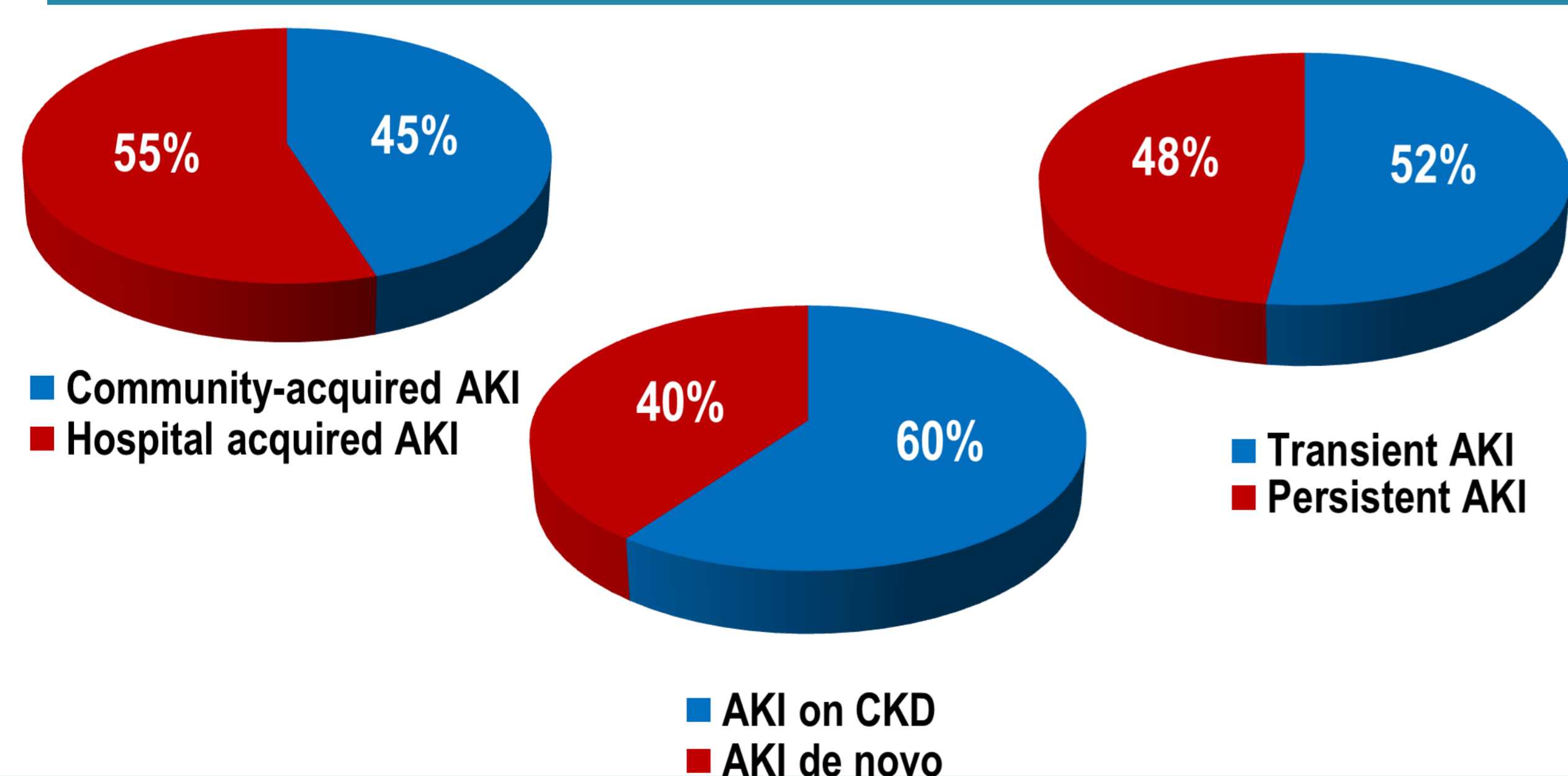
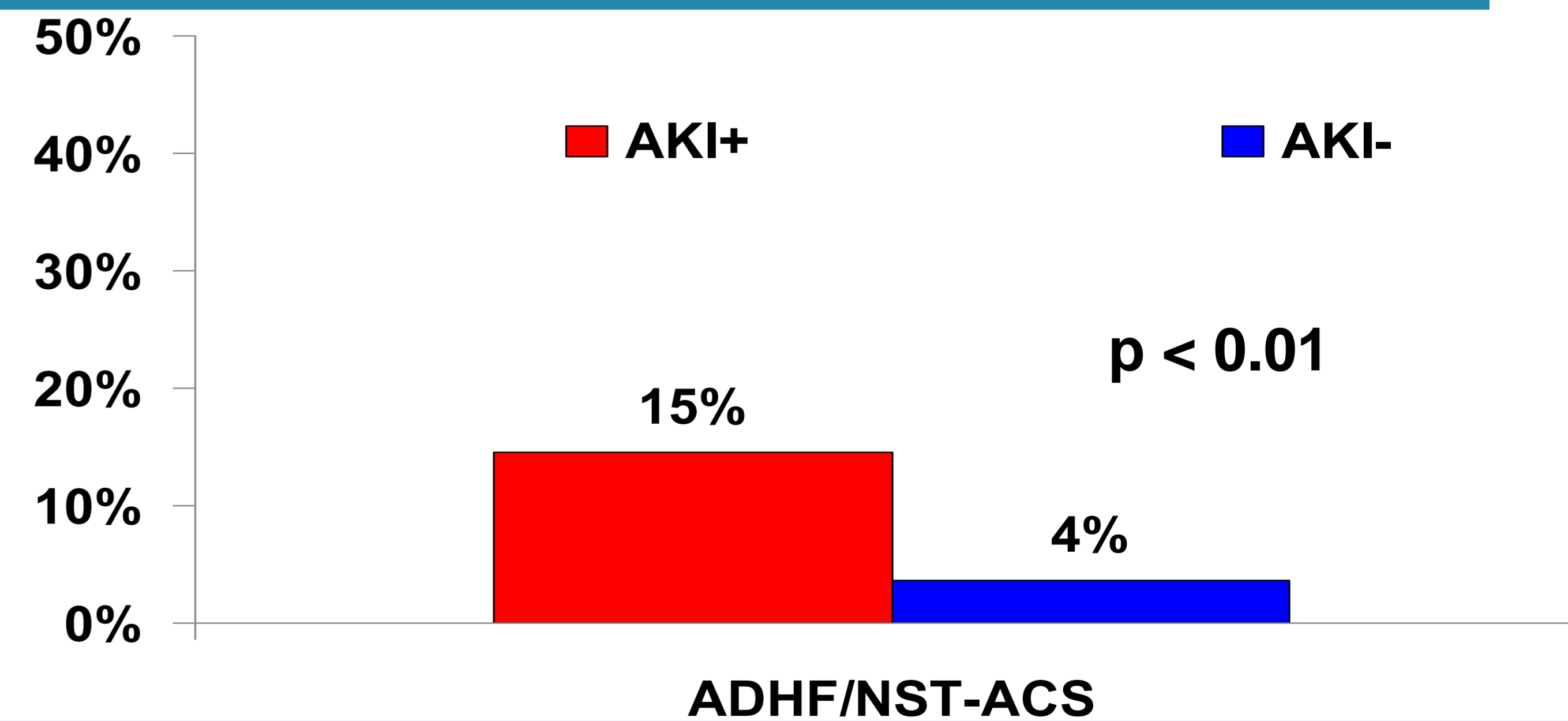


Figure 3. Association of AKI with mortality.



## Conclusions

- 64.7% of patients admitted with acute cardiac diseases developed cardiorenal syndrome.
- CKD and AKI are common in patients with ADHF and NSTEMI-ACS and are associated with high in-hospital mortality.

Disclosure: none

