PREVALENCE AND PROGNOSTIC VALUE OF CONTRAST-INDUCED ACUTE KIDNEY INJURY IN PATIENTS WITH ELECTIVE PERCUTANEOUS INTERVENTION

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Background and Objective

- Contrast-induced acute kidney injury (CI-AKI) is a serious complication after percutaneous coronary intervention (PCI)
- Patients undergoing primary PCI are at high risk of CI-AKI, a complication that negatively affects outcomes.
- CI-AKI has been associated with high in-hospital mortality and poor long-term survival.

- The aim of the study was to evaluate the incidence, risk factors and prognostic value of CI-AKI in patients with elective PCI.

Inclusion criteria

- Patients hospitalized with stable angina pectoris (SAP) and elective PCI

CI-AKI criteria

- Increase in SCr ≥ 0.3 mg/dl (≥ 26.5 µmol/l) within 48 hours; or
- Increase in SCr ≥ 1.5 times baseline within the prior 7 days

Methods

- Detection and classification of acute kidney injury (AKI):
  - ✓ KDIGO Guidelines 2012[1]
  - ✓ Mann-Whitney test was performed. P <0.05 was considered statistically significant.

[1] KDIGO Clinical practice guideline for acute kidney injury. Kidney Int. 2012; 2(1): 1–141

Study population (n=150)

Parameters	Value
Male, n (%)	102 (68)
Age, years (M SD)	61.3±11.2
Arterial hypertension, n (%)	132 (88)
Heart failure, n (%)	101 (67)
Previous myocardial infarction, n (%)	84 (56)
Diabetes mellitus, n (%)	37 (25)
Known chronic kidney disease, n (%)	50 (33)
Ejection fraction, %	42±16

Results

- 14% of patients developed CI-AKI (Fig. 1)
- Stages 1 and 2 of CI-AKI were found in 92 and 8% of cases accordingly (Fig. 2).
- Main independent predictors of CI-AKI were contrast media volume (CV)/eGFR ≥4.35 (odds ratio (OR) 20.2; 95% confidence interval (CI) 3.4-120.8; p <0.01), CKD (OR 17.4; 95% CI 3.8-79.8; p<0.05), Mehran risk score >10 (OR 14.7; 95% CI 1.2-66.6; p<0.0001), CV >350 ml (OR 8.7; 95% CI 1.4-21.5; p<0.05), age ≥74.5 years (OR 6.9; 95% CI 1.4-34.1; p<0.01), baseline eGFR ≤61 ml/min/1.73 m^2 (OR 6.5; 95% CI 1.6-26.0; p<0.01), baseline serum creatinine (SCr) ≥96 µmol/l (OR 5.5; 95% CI 1.4-21.5; p<0.05), anemia (OR 3.0; 95% CI 1.1-8.4; p<0.05).
- Patients with versus without CI-AKI had higher risk of 6 months rehospitalizations (59 vs 33%, χ^2=8,53, p <0.05). (Fig. 3)

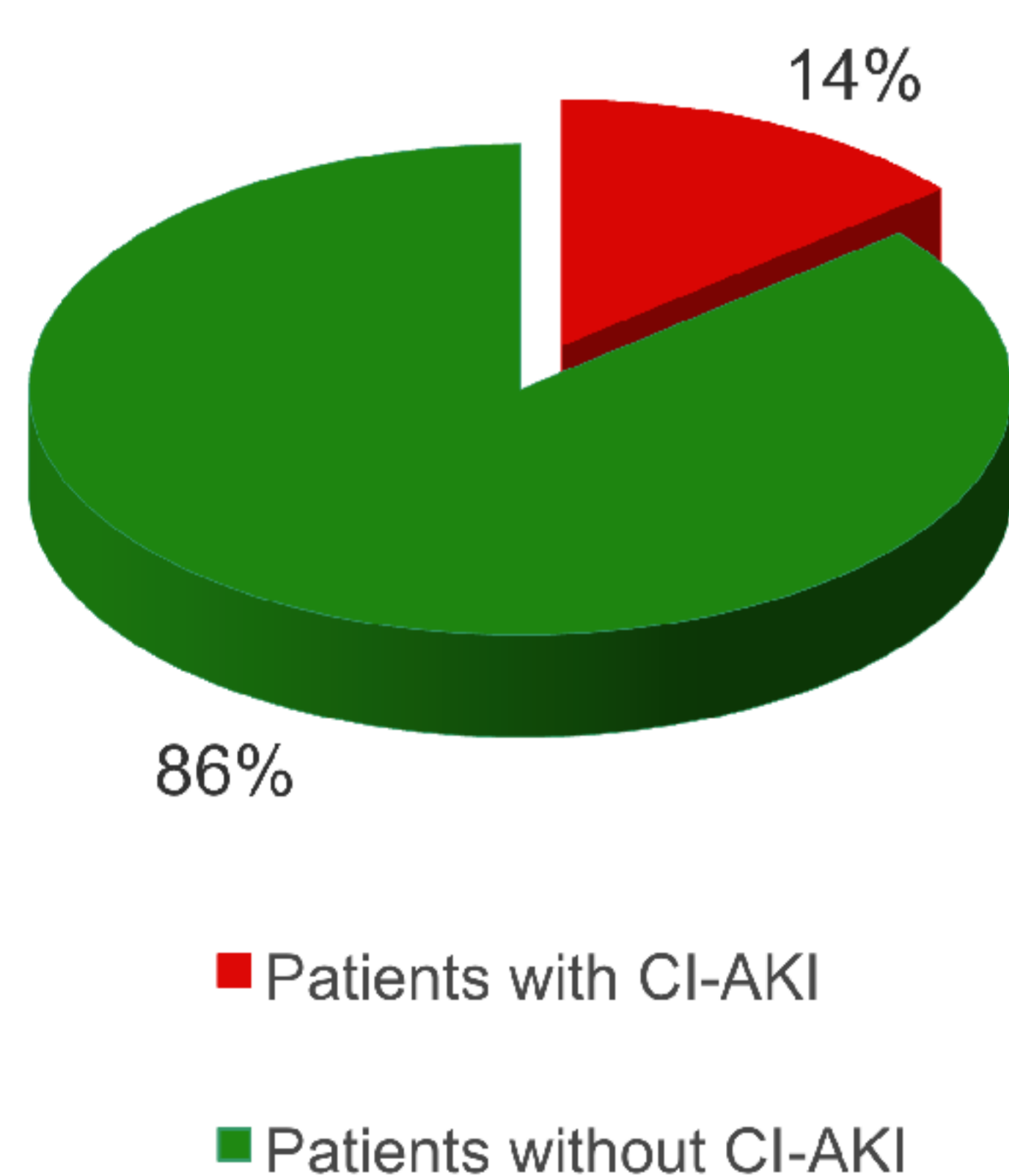### Figure 1. Prevalence of CI-AKI in patients with SAP and elective PCI

14%
86%
■ Patients with CI-AKI
■ Patients without CI-AKI

Figure 2. Stages of CI-AKI in patients with SAP and elective PCI

8%
92%
■ I stage ■ II stage
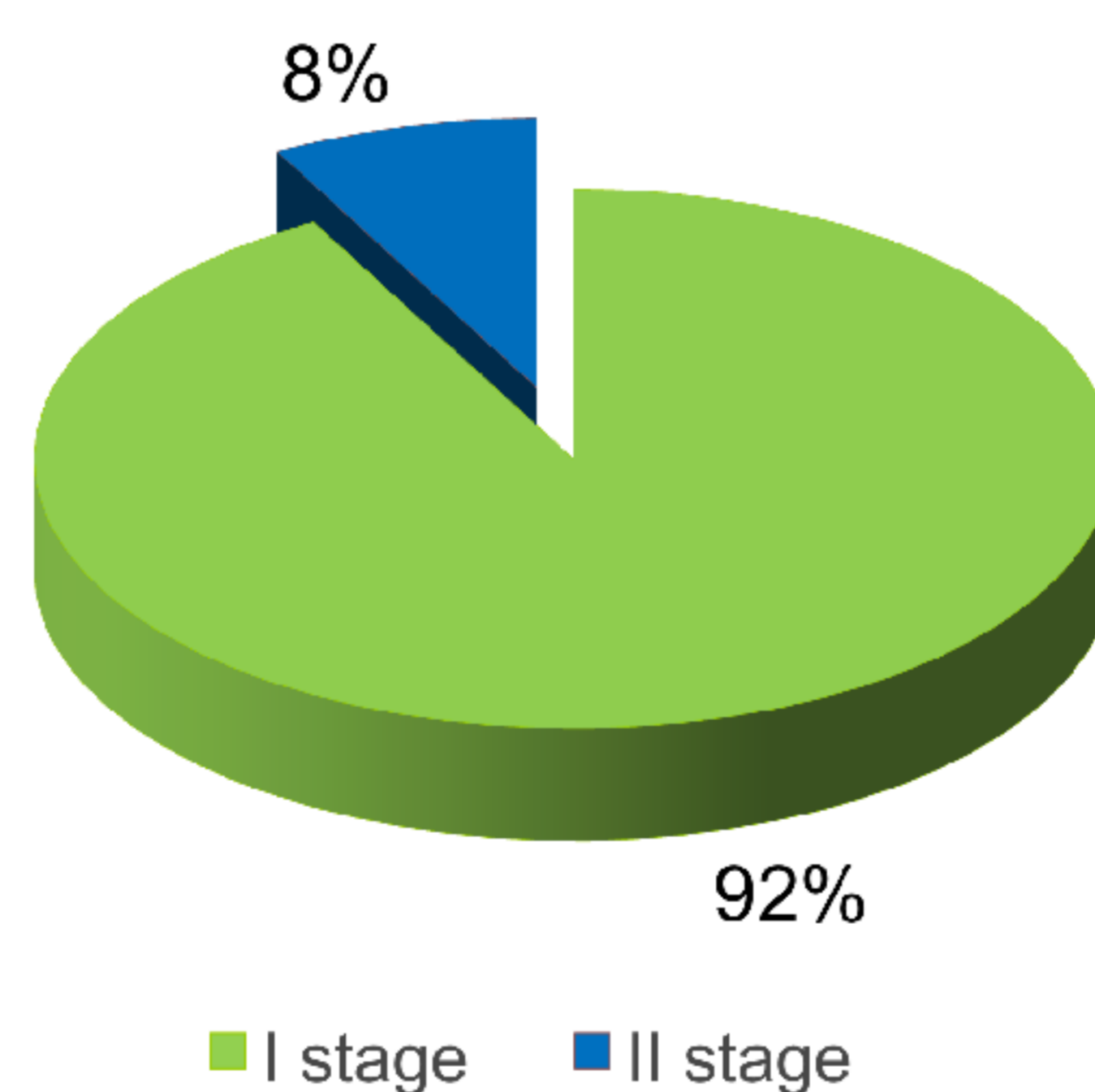
Figure 3. Outcomes of CI-AKI in patients with SAP and elective PCI

χ^2=8,53
p<0,05
59%
33%
6 months rehospitalizations
■ Patients with CI-AKI
■ Patients without CI-AKI
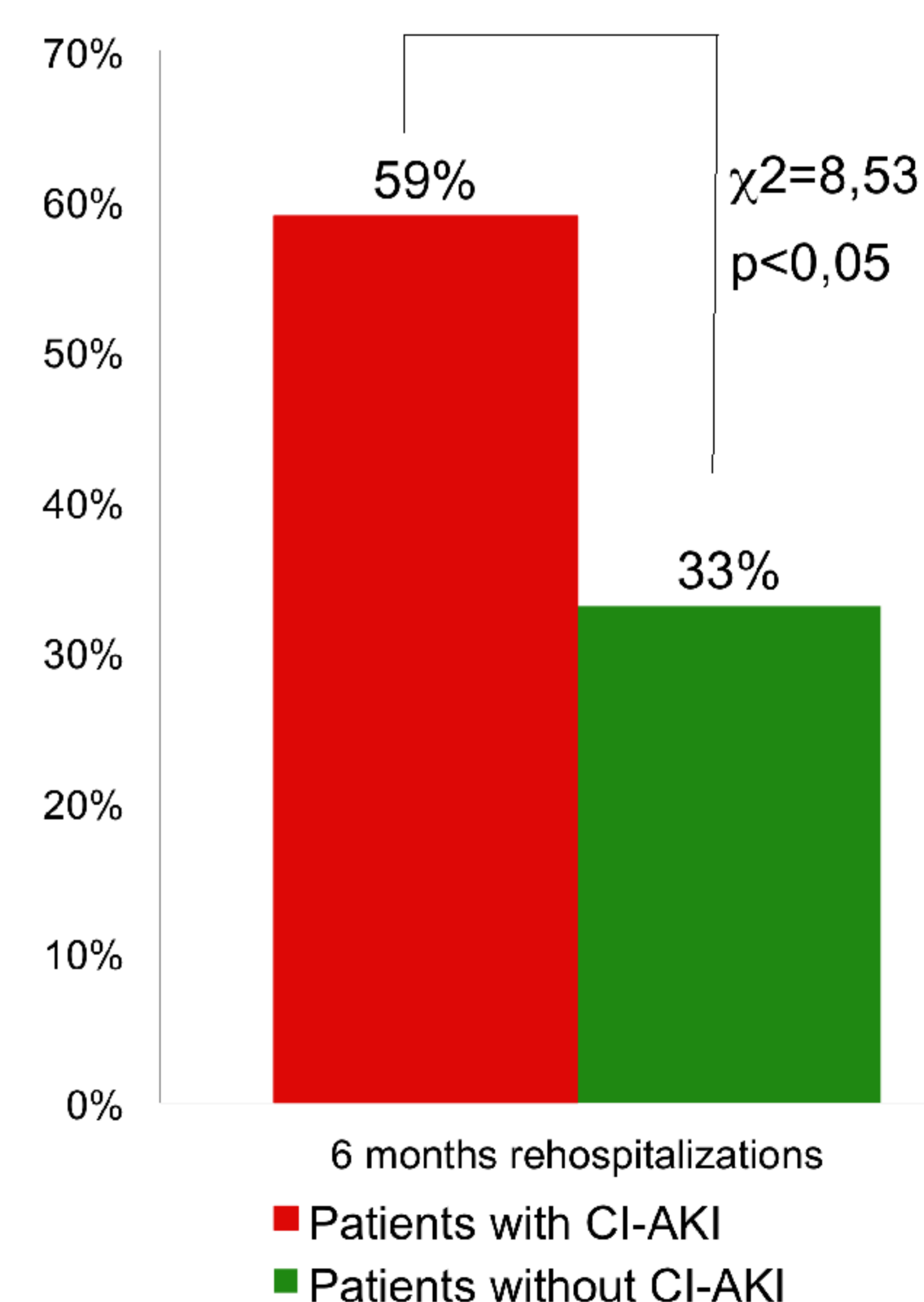
Conclusions

- ✓ CI-AKI in patients with SAP and elective PCI developed in 14% of cases, predominantly stage 1.
- ✓ Main independent predictors of CI-AKI were factors related to the contrast media (CV/eGFR, CV) and factors related to the patient (CKD, Mehran risk score >10, age ≥74.5 years, baseline eGFR ≤61 ml/min/1.73 m2, baseline SCr ≥96 □mol/l, anemia).
- ✓ CI-AKI had negative impact on of 6 months rehospitalizations.

Disclosure: none