

# The role of short-term, high-dose atorvastatin for prevention of contrast-induced acute kidney injury (CI-AKI) in patients with cardiovascular diseases undergoing computed tomography with intravenous contrast administration

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**Objective:** The aim of our study is to assess the incidence of contrast-induced acute kidney injury in patients with cardiovascular diseases during CT scan with intravenous contrast media and analyze the efficacy and safety of various statin dosing regimens for prevention of CI-AKI.

## Methods:

### Study Design

#### Inclusion criterion:

- Patients over 18 years of age.
- The presence of cardiovascular pathology (hypertension, ischemic heart disease, CHF, arrhythmias, and conduction disorders of the heart)

#### Exclusion criteria:

- Patients on statin therapy
- Contraindications to statins
- Severe renal failure
- Acute coronary syndrome
- Administration of nephrotoxic drugs

↓ 180 statin naive patients

Randomized controlled open prospective study

Atorvastatin  
80 mg 24 hrs  
and 40 mg 2  
hrs before  
CT scans.  
60 pts.

Atorvastatin  
40 mg 2 hrs  
before CT  
scans.  
60 pts.

Control  
group.  
60 pts.

1<sup>st</sup> blood  
sample: before  
CT scans

2<sup>nd</sup> and 3<sup>rd</sup> blood  
samples: 48 hrs  
and 72 hrs after  
CT scans

CT scans with intravenous contrast media

Atorvastatin  
40 mg after

Atorvastatin  
40 mg after

Not receiving  
statins

Increase in sCr  
concentration 0.5 mg/dl  
(44.2 mmol/l) or 25%  
above baseline at 72 h  
after exposure to the  
contrast medium

Primary endpoint:  
Incidence of CI-AKI

**Results:** We assume that high-risk patients receiving statins before CT scans with intravenous contrast administration will have a lower incidence of CI-AKI compared to the control group.

**Conclusion:** As a result of the study, we expect to conclude the benefits of statins in CI-AKI prevention and the optimal dosage regimen. This information will help us to reduce the burden of CI-AKI after CT scanning in statin naive patients with cardiovascular diseases in everyday clinical practice.

38<sup>th</sup> Vicenza Course on AKI&CRRT  
a week of virtual meetings