

**Phentolamine as a protector against  
Contrast Induced Nephropathy after  
diagnostic or percutaneous coronary  
intervention**

*Thesis*

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## **Abstract**

Objective: Recent studies have shown that chronic kidney disease is a leading cause of contrast induced acute kidney injury in coronary artery disease,(CAD) patients candidate for intervention cardiology. We aimed to study renal protection using intravenous infusion (IV) phentolamine infusion in moderate to severe chronic renal impairment patients presented with chronic coronary syndromes ,(CCS) after episodes of Acute coronary syndromes ,(ACS) and planned for diagnostic or percutaneous coronary intervention (PCI). The second end point measures were as follows: Increased serum creatinine, (SCr), level after 48 hours of procedure, the requirement for dialysis, Major adverse cardiac events, (MACCE), and short-term all-cause mortality during hospital stay and for 3 months of follow up. Methods: A hundred and seven consecutive CKD patients were hospitalized for elective coronary intervention as a diagnostic and treatment strategy for CCS. Patients were divided into two groups according to convenient CIN prevention strategy including hydration , N-acetylcysteine as a control group included 52 patients and a second group included 55 patients for CIN prevention using intra venous phentolamine infusion in addition to convenient preventive strategy as 2 phentolamine group .phentolamine infusion started one hour before procedure and was continued 4 to 6 hours post procedure . Patients were also divided into two groups according to CIN incidence according to AKI diagnostic criteria including risk , injury failure,loss of function and end stage renal failure (RIFLE) , Acute kidney injury network (AKIN), kidney disease improving global outcomes ,(KDIGO) . Results: Our results showed there were normal distributions between both groups regarding traditional risk factors, ACS subtypes, congestive heart failure, ischemic heart disease , previous coronary angiography or coronary intervention, dyslipidemia , ejection fraction, regional wall motion abnormality, and baseline serum creatinine (SCr). ( $P>0.05$ ) Although, baseline glomerular filtration rate,(GFR), and creatinine clearance,(CrCl), were much less in cases in comparison to controls They indicated higher risk for CIN confirmed by Mehran's risk score. ( $P<0.05$ ) Our results had shown that Phentolamine was an independent effector factor for occurrence of CIN in multivariate regression analysis in presence of other risk factors and that phentolamine decreased CIN incidence in phentolamine group in comparison to hydration group( $P<0.0001$ )

**Keywords** : Chronic coronary syndromes , Phentolamine ,Chronic kidney disease , Acute kidney injury , Contrast induced nephropathy , Acute coronary syndromes , Major adverse cardiac events