بسم الله الرحمن الرحيم

MONA MAGHRABY

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

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جامعة عين شمس

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MONA MAGHRABY

The Predictive Value of Oral Nicorandil on Contrast Induced Nephropathy in Patients with Renal Insufficiency Undergoing Cardiac Catheterization in Non ST Segment Elevation Acute Coronary Syndrome

A Thesis

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Ayman Ahmed Mohamed Mohamed Seleim

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List of Abbreviations

Abb.	Full term
ACEIs	*Angiotensin converting enzyme inhibitor(s)*
ACT	*Acetylcysteine for contrast induced nephropathy trial*
AKI	*Acute kidney injury*
BMI	*Body mass index*
CA	*Coronary angiography*
CCBs	*Calcium channel blocker(s)*
CHF	*Congestive heart failure*
CIN	*Contrast induced nephropathy*
CKD	*Chronic kidney disease*
CM	*Contrast media*
CRRT	*Continuous renal replacement therapy*
DM	*Diabetes mellitus*
eGFR	*Estimated glomerular filtration rate*
HD	*Hemodialysis*
IABP	*Intra-aortic balloon pump*
IONA	*The impact of Nicorandil in angina*
K-ATP	*ATP-sensitive potassium*
KDIGO	*Kidney Disease Improving Global Outcome*
LV	*Left ventricle*
LVEF	*Left ventricular ejection fraction*
MCE	*myocardial contrast echocardiography*
mg/dL	*Milligrams per deciliter*
NAC	*N-acetylcysteine*
NO	*Nitric oxide*
NSAIDs	*Non-steroidal anti-Inflammatory drugs*
NSTEACS	*Non ST elevation acute coronary syndrome*
NSTEMI	*Non ST elevation myocardial infarction*
PCI	*Percutaneous coronary intervention*
PGE1	*Prostaglandin E1*
RIPC	*Remote ischemic preconditioning*
RRT	*Renal replacement therapy*

INTRODUCTION

The diagnosis and management of acute coronary syndromes have progressed significantly. New antithrombotic agents have improved the results of medical treatment New methods of estimating a patient's risk of an adverse outcome help clinicians to decide who may benefit from invasive treatment that is, coronary angiography (CA) and subsequent revascularization either by percutaneous coronary intervention (PCI) or coronary artery bypass surgery ***(Kumar et al., 2009).***

As these therapeutic decisions need to be made soon after admission, the categorization of acute coronary syndromes is now based on the information that is available on admission. If no ST segment elevations are present (normal or depressed ST segments or T wave inversion), a diagnosis of non ST elevation acute coronary syndrome is made ***(Peters et al., 2007).***

In clinical studies, contrast induced nephropathy (CIN) is defined as an elevation of serum creatinine level 44.2 μmol/l (0.5 mg/dL) or 25% above the baseline within 48–72 hours after contrast administration without an alternative cause ***(Chyou et al., 2015).***

CIN can be attributed to intra-renal vasoconstriction, with more frequent incidence in impaired kidneys rather than normal ones. Iodinated contrast media (CM) was considered to

cause CIN by affecting renal blood flow and vascular resistance in impaired kidneys ***(Kurihara et al., 2015).***

The risk of CIN rises in chronic kidney disease (CKD) patients, which is defined as an estimated glomerular filtration rate (eGFR) of < 60 mL/min/1.73 m^2. Certain precautions should be followed before patient's exposure to contrast ***(McCullough, 2008).***

Risk stratification scoring systems have been devised to calculate an individual patient's risk of developing CIN. This has mostly been done in patients planned for PCI, especially those with preexisting risk factors. Mehran et al designed a scoring system based on points awarded to each of the following multivariate predictors ***(Mehran et al., 2006):***

- Hypotension = 5 points.
- Intra-aortic balloon pump (IABP) use = 5 points.
- CHF = 5 points.
- Serum creatinine >1.5 mg/dL= 4 points.
- Age >75 years = 4 points.
- Anemia = 3 points.
- Diabetes mellitus(DM) = 3 points.
- Contrast volume = 1 point for each 100 mL used.