Prognostic Value of Adrenomedullin in Patients with Left Ventricular Systolic Dysfunction after an Acute Myocardial Infarction

Thesis

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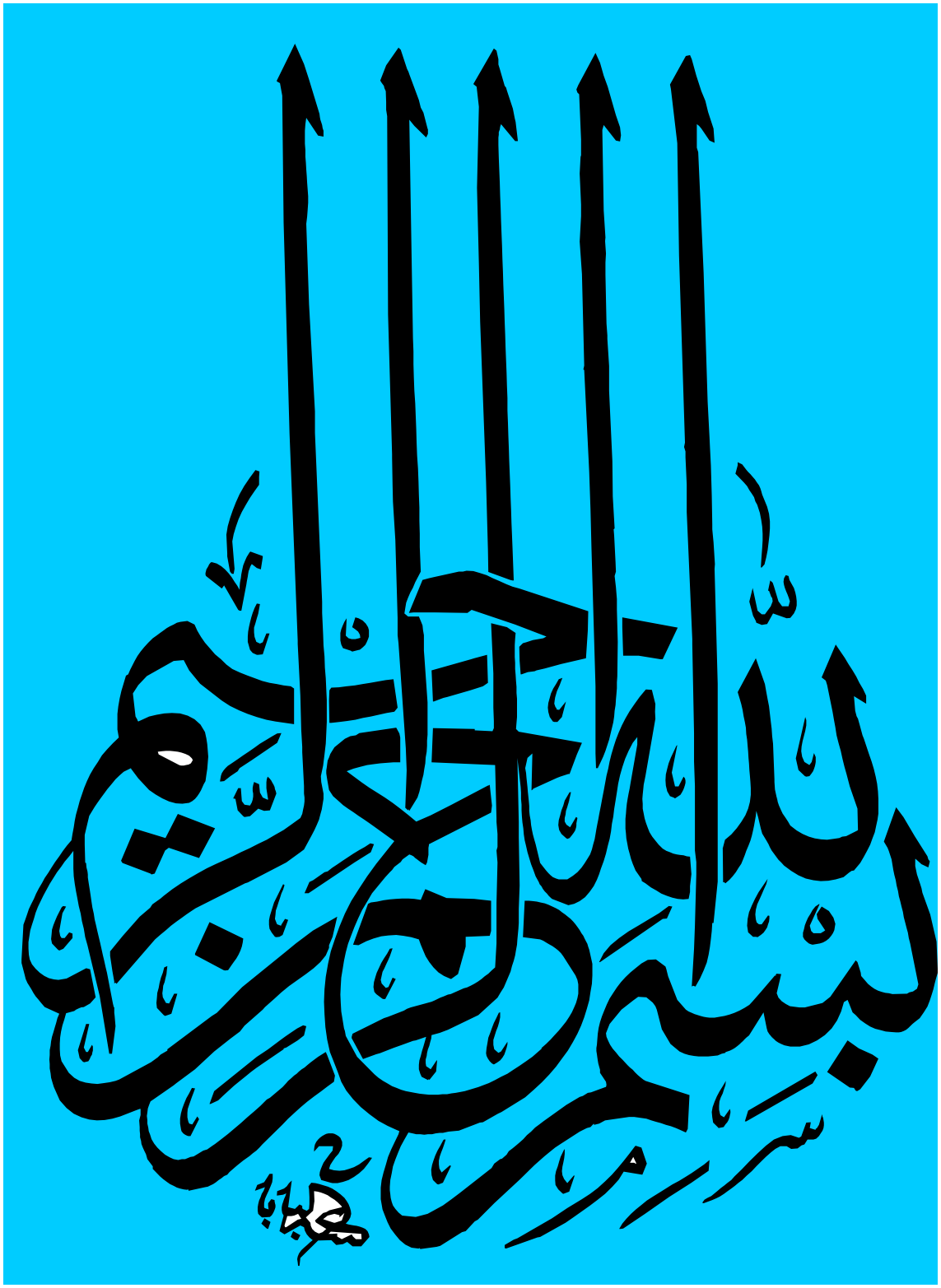
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ABSTARACT

Prognostic Value of Adrenomedullin in Patients With left ventricular systolic dysfunction after an Acute Myocardial Infarction

Objectives This study sought to assess the prognostic impact of adrenomedullin ADM after an acute myocardial infarction (AMI).

Background Adrenomedullin (ADM) is elevated in heart failure (HF) and after AMI and compared it with N-terminal pro-B-type natriuretic peptide (NTproBNP), a marker of death and HF.

Methods We measured plasma ADM and NTproBNP in 60 consecutive post-ST elevated AMI patients with systolic dysfunction (< EF 50%), (45 men,represents 75% with mean age57.6±8.4 years old), 3 to 5 days after chest pain onset.

Results Mean age of studied patients was 57.6±8.4 years old (Range 35-80). Males constituted 73.3% of our study population (44 males), , we found mean NYHA 2.8 , mean Killip class of 2.9 and mean TIMI risk score of 8.3.

Follow-up was done at 90 days. Forty eight patients survived (80%). Two patients experienced cerebrovascular events (3.3%),two patients experienced re-infarction (3.3%), and seven patients experienced life-threatening arrhythmias (11.7%).

ADM had proved to have a significant prognostic value in predicting mortality if compared to Pro-BNP as evidenced by plotting the ROC curve that revealed AUC for ADM to be 0.977 and 0.775 for Pro-BNP . The same significant higher prognostic power for ADM applies for predicting MACE using ROC curve and estimating AUC. Multivariate analysis showed that ADM was the only predictor for MACE. ADM: (OR 1.62, CI 95%: 1.19-2.20, P value .002).

Conclusion The ADM system is activated after AMI. The ADM may represent a clinically useful marker of prognosis in patients with LV dysfunction after an acute AMI.

Key words: ADM (adrenomedullin)),AMI (acute myocardial infarction), AUC (area under the curve,MACE (major adverse cardiovascular events).

List Of Abbreviation

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ADM	adrenomedullin
AMI	acute myocardial infarction
CAD	coronary artery disease
DM	diabetes mellitus
DES	drug eluting stent
LV	left ventricular
MAP	mean artrerial blood pressure
MR ADM	midregional adrenomedullin
EDV	end diastolic volume
EF	ejection fraction
ESV	end systolic volume

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IABP	intra aortic balloon counter pulsation
MACE	major adverse cardiovascular events
NYHA	new York Heart association
PA	pulmonary artery
PCI	percutaneous coronary intervention
PCWP	pulmonary capillary wedge
pressure	
Pro BNP	pro B natruiretic peptide
Pts	patients
Pvo2	pulmonary venous O2 saturation
Qs	systemic flow
Qp	pulmonary flow
RWMAS	regional wall abnormality score
So2	arterial oxygen saturation
STEMI	ST elevated myocardial infarction
Svo2	mixed venous oxygen saturation
SVR	systemic vascular resistance

TIMI	thrombolysis in acute myocardial infarction
TTE	transthorasic echocardioghraghy

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Aim of Work

To assess the cardiovascular prognostic value of adrenomedullin (ADM) and compare this with B-type natriuretic peptide (BNP), in predicting composite end point (death and MACE) within 90 days from the onset of MI.

Myocardial Infarction

Definition of Myocardial Infarction

Cardiovascular disease is a global health problem. Understanding the burden and effects of CAD in populations is of critical importance. Changing clinical definitions, criteria and biomarkers add challenges to our understanding and ability to improve the health of the public. The definition of MI for clinicians has important and immediate therapeutic implications. For epidemiologists, the data are usually retrospective, so consistent case definitions are critical for comparisons and trend analysis. The standards described in this report are suitable for epidemiology studies. However, to analyze trends over time, it is important to have consistent definitions and to quantify adjustments when biomarkers or other diagnostic criteria change ·For example, the advent of cTn dramatically increased the number of diagnosable MIs for epidemiologists***(Mendis et al 2011).***

In countries with limited economic resources, cardiac biomarkers and imaging techniques may not be available except in a few centers, and even the option of ECG recordings may be lacking. In these surroundings, the WHO states that biomarker tests or other high-cost diagnostic testing are unfit for use as compulsory

diagnostic criteria [3]. The WHO recommends the use of the ESC/ ACCF/AHA/WHF Universal MI Definition in settings without resource constraints, but recommends more flexible standards in resource-constrained locations***(Mendis et al 2011).***

Cultural, financial, structural and organizational problems in the different countries of the world in the diagnosis and therapy of acute MI will require ongoing investigation.

It is essential that the gap between therapeutic and diagnostic advances be addressed in this expanding area of cardiovascular disease. distinguishes between incident and recurrent events. From the epidemiological point of view, the incidence of MI in a population can be used as a proxy for the prevalence of CAD in that population. The term 'myocardial infarction' may have major psychological and legal implications for the individual and society. It is an indicator of one of the leading health problems in the world and it is an outcome measure in clinical trials, observational studies and quality assurance programs.

These studies and programs require a precise and consistent definition of MI.

In the past, a general consensus existed for the clinical syndrome designated as MI. In studies of disease