شبكة المعلومات الجامعية

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بسم الله الرحمن الرحيم

HANAA ALY

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جامعة عين شمس

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قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

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تحفظ هذه الأقراص المدمجة بعيدا عن الغبار

HANAA ALY

Value of transthoracic echocardiography in predicting short term major adverse cardiac events after ST-segment elevation myocardial infarction in COVID 19 Era

Thesis

Submitted for Partial Fulfillment of Master's Degree in Cardiology

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Dina Mohamed

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List of Abbreviations

Abb.	Full term
2D & 3D-STE	Two and three-dimensional speckle tracking strain echocardiography
ACE	Angiotensin-converting enzyme
ACS	Acute coronary syndrome
CABG	Coronary artery bypass grafting
CAD	Coronary artery disease
CMR	Cardiac magnetic resonance
COVID-19	Coronavirus-induced disease-2019
CT	Computed tomography
cTn	Cardiac Troponins
DAPT	Dual antiplatelet therapy
ECG	Electrocardiogram
ECM	Extracellular matrix
ED	Emergency department
EDD	End-diastolic diameter
EKG	Electrocardiogram
EMS	Emergency Medical Services
ESD	End-systolic diameter
FITT-STEMI	Feedback Intervention and Treatment Times in ST-Elevation Myocardial Infarction
FMC	First medical contact
GE	General Electrics
GLS	Global longitudinal strain
HDL	High-density lipoprotein
IV	Intravenous
LBBB	Left bundle branch block
LDL	Low-density lipoprotein
LS	Longitudinal strain

List of Abbreviations Cont...

Abb.	Full term
LV	Left ventricular
LVEF	Left ventricular ejection fraction
MACE	Major adverse cardiovascular events
MI	Myocardial infarction
MRA	Mineralocorticoid receptor antagonist
MVO	Microvascular obstruction
NSTE-ACS	Non ST elevation – acute coronary syndrome
OASIS 6	Organization for the Assessment of Strategies for Ischemic Syndromes 6
PCI	Percutaneous coronary intervention
ROI	Region-of-interest
RV	Right ventricular
SaO2	Arterial oxygen saturation
SCAI	Society for cardiovascular Angiography and Interventions
STE	Speckle tracking echocardiography
STEMI	ST-segment elevation myocardial infarction
UFH	Unfractionated heparin

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INTRODUCTION

Acute myocardial infarction (AMI) remains a leading cause of morbidity and mortality worldwide. Patients with AMI and Coronavirus-induced disease-2019 (COVID-19) infection have increased mortality risk mainly due to increased burden of comorbidities. After myocardial infarction, patients are at increased risk for major adverse cardiac events (MACE) including re-infarction, heart failure and mortality. This risk increases with the presence of left ventricular systolic dysfunction [1,2,3].

Echocardiography plays an important role after ST-segment elevation myocardial infarction (STEMI) in evaluation of left ventricular systolic and diastolic functions and in identification of mechanical complications if present [4]. Despite technical improvement, there is considerable inter-observer variability in evaluation of left ventricular ejection fraction and resting segmental wall motion abnormality [5]. Measuring left ventricular peak systolic global longitudinal strain may be a useful addition to ejection fraction with some evidence of lower observer variability [4].

AIM OF THE WORK

Aim of the study: is to evaluate different parameters of echocardiography in predicting MACE in patients after acute STEMI in the era of COVID 19.

Chapter 1

ACUTE MYOCARDIAL INFARCTION

Definition of AMI

The clinical definition of Myocardial Infarction denotes the presence of acute myocardial injury detected by abnormal cardiac biomarkers in the setting of evidence of acute myocardial ischemia defined by detection of an elevated cardiac Troponins (cTn) value above the 99th percentile. The injury is considered acute if there is a rise and/or fall of cTn values. (Fourth universal definition of myocardial infarction (2018). [6]

Pathophysiology

AMI is commonly defined as a cardiomyocyte death due to a prolonged ischemia resulting from an acute imbalance between oxygen supply and demand. The 'clinical' definition of MI was recently updated, focusing on the values of serum markers of cardiac necrosis, such as cTn.[7]