بسم الله الرحمن الرحيم

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تم رفع هذه الرسالة بواسطة /صفاء محمود عبد الشافى

بقسم التوثيق الإلكتروني بمركز الشبكات وتكنولوجيا المعلومات دون أدنى مسئولية عن محتوى هذه الرسالة.

ملاحظات: لايوجد

The value of fructosamine in prediction of angiographic outcomes in diabetic patients presented with anterior ST segment elevation acute coronary syndrome undergoing their first primary PCI

Thesis

Submitted for Partial Fulfillment of Master's Degree in Cardiology

By

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M.B.B., Ch.

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Mohammed Borham

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List of Abbreviations

Abb.	Full term
ACS	Acute coronary syndrome
AMI	Acute Myocardial Infarction
ANS	Autonomic nervous system
CABG	Coronary artery bypasses grafting
CK-MB	Creatine kinase-myocardial isoenzyme
CMRI	Cardiac magnetic resonance imaging
CRP	C-Reactive Protein
CT	Cardiac Troponins
CVD	Cardiovascular disease
DES	Drug eluting stent
ECG	Electrocardiography
ECM	Extracellular matrix
ENOS	Endothelial nitric oxide synthase
FMC	First medical contact
IL-6	Interleukin-6
IV	Intravenous
LV	Left ventricular
MACE	Major adverse cardiac events
MBG	Myocardial blush grade
MCE	Myocardial contrast echocardiography

List of Abbreviations Cont...

Abb.	Full term
MI	Myocardial infarction
MRA	Mineralocorticoid receptor antagonist
MRI	Magnetic resonance imaging
NO	Nitric oxide
NOS	Nitric oxide synthase
NYHA	New York heart association
PCI	Percutaneous coronary intervention
PMI	Periprocedural myocardial injury
RCTs	Randomized controlled trials
ROS	Reactive oxygen species
RV	Right ventricular
SaO2	Oxygen saturation
SPSS	Statistical Package for Social Science
STEMI	ST-elevation myocardial infarction
STR	ST-segment resolution
TIMI	Thrombolysis in myocardial infarction
ULN	Upper limit of normal
URL	Upper reference limit

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ABSTRACT

Background: Cardiovascular diseases are the leading most common cause of death in industrialized countries. The chronic hyperglycemia of diabetes is associated with long-term damage, dysfunction and failure of different organs especially heart and blood vessels.

Objective: To study the predictive value of Fructosamine as a marker of short-term glycemic control over 2-3 weeks on the angiographic and clinical outcomes in diabetic patients presented with anterior STEMI in Ain shams university hospital.

Patients and Methods: This is an observational study recruiting 100 patients presented with anterior STEMI who underwent their first primary percutaneous coronary intervention (PPCI) from May 2020 to December 2020.

Results: Angiographic results of patients post PCI were as follows:
Regarding Thrombolysis in myocardial infarction (TIMI Flow), 8 patients had TIMI flow 0, 18 had TIMI I, 27 had TIMI II and 37 had TIMI III flow. Regarding myocardial blush grade (MBG) 12 patients had MBG grade 0, 27 had grade I, 20 had grade II and 4 had grade III.
During follow up for one-month, Major adverse cardiac events (MACE) occurred in 56% of patients. Measured serum Fructosamine levels were ranging between (233 to 557 μmoll/L) the results showed a strong correlation between serum Fructosamine and TIMI flow MBG. Patients with higher Fructosamine level had worsen TIMI flow and MBG and more occurrence of MACE in diabetic patients after PPCI.
Conclusion: High Fructosamine level can be used as a predictor for worse outcomes in diabetic patients presented with Anterior STEMI.

Keywords: Diabetes, Fructosamine, STEMI, PPCI, TIMI Flow, MBG, MACE.

INTRODUCTION

Diabetes Mellitus is defined as the most common endocrine disorder where the body does not either produce enough insulin or has a resistance to the circulating insulin, and is characterized by high blood sugar levels over prolonged periods ***(Arnold et al., 2018).***

The chronic hyperglycemia of diabetes is associated with long-term damage, dysfunction and failure of different organs, especially the eyes, kidneys, nerves, heart and blood vessels.

Long-term complications of diabetes include retinopathy with potential loss of vision, nephropathy leading to renal failure, peripheral neuropathy with risk of foot ulcers, amputations, Charcot joints and autonomic neuropathy causing gastrointestinal, genitourinary, and cardiovascular diseases ***(American Diabetes Association, 2009).***

Microvascular complications for which a large body of data has been accumulated, leading to the endorsement of HbA1c for diagnosis in many countries worldwide, with some variations in cut-offs and testing strategies ***(Florkowski, 2013).***

According to recent statistics, this condition afflicts as many as 382 million persons around the globe, with an estimated prevalence of approximately 8.3% in 2013. Worldwide, as many as 592 million individuals may be affected

by diabetes in 2035, a remarkable 55% increase in prevalence over the next 2 decades ***(Guariguata et al., 2014).***

The current diagnostic and prognostic strategies in diabetes are mainly based on two tests, plasma (or capillary) glucose and glycated hemoglobin (HbA1c).

In practice, fructosamine testing refers to a laboratory test for diabetes management that it is rarely used in clinical practice (simple blood glucose monitoring or HbA1c testing are usually preferred). However, the main advantage of the test is that it can detect overall changes in blood glucose control within a few weeks, rather than months (like HbA1c). Fructosamine can be also useful when the HbA1c measurement may be unreliable e.g. in case of hemoglobinopathies such as Thalassemia ***(Burtis et al., 2012).***

Cardiovascular diseases (CVD) are a major public health problem worldwide. It has been estimated that 17.5 million people die of it each year. Coronary artery disease (CAD) is the leading component of cardiovascular diseases and the most common cause of death in industrialized countries. Annually 1.8 million people in Europe die from CAD ***(Nichols et al., 2014).***

Major adverse cardiac events (MACE) is defined as the composite of total death; MI; stroke, hospitalization because of HF; and revascularization, including percutaneous coronary