The significance of circulating levels of both cardiac Troponin I and high sensitive C Reactive protein for the prediction of Intravenous thrombolytic outcome in Patient with Anterior STEMI

Thesis

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دور التروبونين (اي) وبروتين (س) التفاعلي عالي الحساسيه فى التنبؤ بمدي إنقاذ عضلة القلب في مرضي إحتشاء عضلة القلب الجدار الامامي المصحوب بارتفاع فى قطعة س- ت فى رسم القلب الكهربى والذين تمت إعادة التروية لهم عن طريق مذيب الجلطات

رسالة

مقدمة توطئة للحصول على درجة الماجستير
فى أمراض القلب و الأوعية الدموية

مقدمة من
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List of Abbreviations

ACC : American college of cardiology

AHA : American Heart Association

AMI : Acute myocardial infarction

APO E : Apo lipoprotein E

AT1R : Angiotensin receptor

AUC : area under the curve

CABG : Coronary arteries bypass grafting

CAD : Coronary artery disease

CCU : Coronary care unit

CDC : the US Centres for Disease Control and Prevention

CK : Creatine kinase

CK-MB : Creatine kinase myocardial band

CRP : C -reactive protein.

CTnI : Cardiac troponin I

CTnT : Cardiac troponin T

CV : cardiovascular

E NOS :e-Nitric oxide syntheses

ECG : Electrocardiogram

ESC : European Society of Cardiology

FMC : First medical contact

GP : Glycoprotein

HAEC : human aortic endothelial cells

HDL : High density lipoprotein

HsCRP : high sensitive c-reactive protein.

I NOS **:** i-Nitric oxide syntheses

ICAM : intercellular adhesion molecule

IL : interleukin

IRA **:** Infarction related artery

IU **:** International unit

LAD **:** Left anterior descending artery

LBBB **:** Left bundle branch block

LCX **:** Left circumflex artery

LDH : Lipo dehydrogenize

LDL : Low density lipoprotein

LV **:** Left ventricle

MBG **:** Myocardial blush grade

mg **:** Milligram

mm **:** Millimeter

MMP :matrix metalloproteinase

MPI : Myocardial perfusion imaging

MPO :myeloperoxidase

mv **:** Millivolt

NACB :National Academy of Clinical Biochemistry

PCI **:** Percutaneous coronary intervention

PTCA **:** Percutaneous transluminal coronary angioplasty

RCA **:** Right coronary artery

RISK : Reperfusion injury salvage kinase

r-PA **:**Reteplase

SD **:** Standard deviation

SK **:** Streptokinase

SPECT **:** Single photon emission computed tomography

STEMI **:** ST segment elevation myocardial infarction

Tc **:** Technetium

TIMI **:** Thrombolysis in myocardial infarction

TNK-tPA **:**Tenecteplase

tPA **:** Tissue plasminogen activator

URL **:**upper reference limit

VCAM :vascular cell adhesion molecule

Vs. **:** Versus

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المقدمه:

يعتبر احتشاء عضلة القلب المصحوب بارتفاع القطعة (س ت) في رسم القلب الكهربي من أخطر صور قصور الشرايين التاجية ويحدث نتيجة انسداد أحد الشرايين التاجية الرئيسية بصورة تامة والذي يُعد إعادة ترويته الهدف الأول في العلاج.

وتساعد إعادة سريان الدم إلى القلب فى إنقاذ خلايا القلب وخفض معدلات الاصابة والوفاة و لكن من الممكن أن يصحب إعادة التروية إصابة و موت بعض الخلايا القلبية.

:. الهدف من الدراسة

تهدف هذه الدراسة الي تقييم دور انزيم التروبونين (اي) وبروتين (سي) التفاعلي عالي الحساسيه على التنبؤ بمدي إنقاذ عضلة القلب في مرضي إحتشاء عضلة القلب المصحوب بارتفاع فى قطعة س- ت فى رسم القلب الكهربى والذين تمت إعادة التروية لهم عن طريق مذيب الجلطات (عقار استربتوكاينيز).

اختيار المرضى:

يتم اختيار60 مريضا من المرضى المصابين باحتشاء الجدار الامامي لعضلة القلب المصاحب بارتفاع القطعة (س ت) في رسم القلب الكهربي واعطاء مذيب الجلطات (عقار استربتوكاينيز) خلال ست ساعات من بدايه الشعو بالالم.

وتم استبعاد من لديهم الامراض الاتية:

1-المرضي اصحاب موانع استخدام مذيب الجلطات:

- شرخ في الشريان الاورطي او اي نزيف داخلي .
- جلطه دماغيه حديثه او اورام او نزيف سابق بالمخ.

2-العوامل الموثره علي قراءه رسم القلب الكهربي مثل:

- انسداد بالضفيرة اليمنى أواليسري.
- المرضي ذوي اجهزه منظمات ضربات القلب.

3-الهبوط الحاد بالدوره الدمويه.

4-العوامل الموثره علي قياسات انزيم التوبونين(اي) وبروتين (سي) التفاعلي عالي الحساسيه مثل:

- المرضى المصابين بامراض الفشل الكبدى أو الكلوى أوهشاشة العظام.
- المرضى الذين يعانون من اورام سرطانيه او امراض الالتهاب المزمنه (روماتويد)

5-عدم القدره علي استكمال كامل جرعه مذيب الجلطات نتيجه حدوث مضاعفات.

6-امراض سيوله الدم او النزيف الحاد.

7-الاحتشاء السابق لعضله القلب.

طرق البحث:

يتم فحص المريض فحصا كاملا

- التاريخ المرضى والفحص الاكلينيكى.
- عمل رسم قلب بعد 90 دقيقه من نهايه ا لمذيب ثم بعد 12 ساعه و 24 ساعه ثم يوميا مع تسجيل النشاط الكهربائى للقلب على مدار اليوم عن طريق اجهزة المونيوتور فى فترة اقامة المرضى بالعناية المركزة .
- عمل موجات صوتيه للقلب لتقييم كفأءه عضله القلب.
- عمل التحاليل الطبية الروتينية .
- قياس نسبه انزيم التروبونين (اي) و بروتين (سى) التفاغلى عالي احساسيه فور دخول المريض للمستشفي.
- عمل قسطره تشخيصيه في اول 48 ساعه من دخول الميض للمستشفي.

Introduction

Acute myocardial infarction remains a leading cause of morbidity and mortality worldwide. Myocardial infarction occurs when irreversible myocardial cell damage or death occur (1)

ST segment elevation myocardial infarction is the most serious presentation of atherosclerotic coronary artery disease carrying the most hazardous consequences (2). It is caused by occlusion of major coronary artery.

Thrombolytic therapy for acute anterior myocardial infarction reduce case fatality and improves clinical outcome (GISSI) (ISSIS-2), (3),(4) however in up to 60% of patients the treatment does not restore perfusion in the myocardium at risk(5) and such failure indicates a worse prognosis (6) .

Failed reperfusion after thrombolytic therapy for acute myocardial infarction is common and signifies a poor prognosis. Failed Thrombolysis was defined as <50% ST- segment resolution 90 minutes after the start of the thrombolytic therapy. ST- segment resolution is a useful marker of successful Thrombolysis and relates to clinical outcome (7).

The identification of the predictors of intravenous Thrombolysis failure is essential in everyday clinical practice but remain a challenge. In attempt to identify these predictors ,several clinical and angiographic characteristic, as well as biochemical markers have been suggested(4).in particular ,coronary angiography or ECGs ,elevated circulating levels of either cardiac troponin (ctn) or C reactive protein(CRP)have been related to intravenous thrombolytic failure and prognosis. However, the significant of simultaneous assessed ctn I and CRP has not been evaluated (8).

Aim of the Work

The aim of study is to identify the significance of circulating levels of both cardiac Troponin I and high sensitive C- reactive protein for the prediction of intravenous Thrombolysis outcome in patient with Anterior STEMI.

Patients and Methods

This study willinclude sixty patients admitted to coronary care unit (CCU) with acute anterior STEMI within 6 hours from onset of chest pain who are eligible for reperfusion via intravenous thrombolytic therapy .

A. Patients

Patient will be enrolled according to following inclusion criteria

1. Inclusion criteria:

I) Patients were presenting with acute anterior STEMI which defined as :

I) Typical rise and/or fall of cardiac biomarkers of myocardial necrosis with at least one of the following:

1) New ST segment elevation at the J point in two contiguous leads with cut off points: 0.2 mV in men and 0.15 mV in women in leads V2 and V3 and/or 0.1 mV in other leads.

2) Any ischemic symptoms such as chest pain, palpitation or dyspnea, extra..(9).

2. Exclusion criteria:

Patients who had one or more of the following were excluded from the study:

1) Patients with contraindication to thrombolytic therapy such as:

*Previous hemorrhagic stroke at any time, ischemic stroke within 3 months.

*Known intracranial neoplasm, structural cerebrovascular lesion, or closed head injury within 3 months.

* Active bleeding or bleeding diathesis.

*Suspected aortic dissection.

2) Complicating factors on baseline ECG that may significantly over or under estimate the myocardial infarction size such as Left bundle branch block (defined as deep wide QS or occasionally an rS pattern with wide s wave in lead V1, a prominent often notched R wave without a preceding Q wave in lead V6,and a QRS width of 0.12 second or more)

3) Paced rhythm.

4) Re-infarction during hospital stay.

5) Cardiogenic shock.

6) Factors may associate with elevated serum troponin as renal impairment.

7) Factors may associate with elevated hsCRP as inflammatory diseases.