Comparative Study of In-hospital Outcome of Elective Percutaneous Coronary Intervention (PCI) in Patients Above & Below 65 Years

Thesis

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بسم الله الرحمن الرحيم
إقرأ باسم ربك
الذي خلق «١١ خلق
الإنسان من
علق «١٢ إقرأ
وربك
الأكرم «١٣ الذي
علم بالقلم «١٤ علم
الإنسان ما لم
يعلم «١٥
صدق الله العظيم

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Abu Haidar Mohammad

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List of Abbreviations

Abb.	Meaning
ACC..... :	American College of Cardiology
ACE..... :	Angiotensin Converting Enzyme
ACS..... :	Acute Coronary Syndrome
AHA..... :	American Heart Association
AV..... :	Atrio-Ventricular
BNP..... :	Brain Natriuretic Peptide
BP..... :	Blood Pressure
CA..... :	Coronary Angiography
CABG..... :	Coronary Artery Bypass Grafting
CAD..... :	Coronary Artery Disease
CHD..... :	Coronary Heart Disease
CNS..... :	Central Nervous System
CT..... :	Computerized Tomography
CVD..... :	Cardio vascular Disease
DAPT..... :	Dual Anti Platelet Therapy
DBP..... :	Diastolic Blood Pressure
DES..... :	Drug Eluting Stent
DM..... :	Diabetes Mellitus
ECG..... :	Electrocardiography
EF..... :	Ejection Fraction
GP..... :	Glyco-protein
HDL..... :	High Density Lipoprotein
HF..... :	Heart Failure
HIV..... :	Human Immuno deficiency Virus
HSRA..... :	High Speed Rotational Atherectomy
HTN..... :	Hypertension
IDDM..... :	Insulin Dependent Diabetes Mellitus
IHD..... :	Ischemic Heart Disease
LAD..... :	Left Anterior Descending
LCX..... :	Left Circumflex
LVH..... :	Left Ventricular Hypertrophy
MACE..... :	Major Adverse Cardiac Events
MI..... :	Myocardial Infarction

List of Abbreviations (Cont…)

Abb.	Meaning
NIDDM.....:	Non Insulin Dependent Diabetes Mellitus
NO .....:	Nitric Oxide
NSTEMI .....:	Non ST Elevated Myocardial Infarction
OM.....:	Obtuse Marginal
PAI.....:	Plasminogen Activator Inhibitor
PCI.....:	Percutaneous Coronary Intervention
RCA.....:	Right Coronary Artery
RCT .....:	Randomized Control Trial
SBP.....:	Systolic Blood Pressure
SD.....:	Standard Deviation
SERCA .....:	Sercoplasmic Reticulum Reduced Calcium Adenosine triphosphatase
STEMI.....:	ST Elevated Myocardial Infarction
TIMI .....:	Thrombolysis In Myocardial Infarction
VSMC.....:	Vascular Smooth Muscle Cell
WHO.....:	World Health Organisation

Protocol (English)

Introduction:

Cardiovascular diseases (CVDs), defined as diseases of the heart and blood vessels, are the leading cause of death and disability globally (1). According to the World Health Organization (WHO) this is a result of an increase in the prevalence of cardiovascular risk factors caused by the aging of population and the globalisation of unhealthy behaviours.

The main underlying pathogenesis of Coronary Artery Disease (CAD) is the process of atherosclerosis (1,2) which leads to the formation of atheromatous plaques with subsequent obstruction of the arterial lumen and reduction of blood flow. The development of atherosclerotic plaques is a slow process influenced by a number of risk factors such as smoking, high blood pressure and high cholesterol levels (3).

Reduced coronary blood flow with subsequent myocardial ischemia typically manifests itself clinically as diffuse pain or discomfort in the chest and changes in the ECG (2). In stable CAD the characteristic clinical manifestation, known as stable angina pectoris, is a radiating chest pain elicited by physical

exercise and relieved by rest or the administration of nitroglycerin (2, 10). The pathophysiology of stable CAD is an inability of stenosed coronary arteries to increase blood flow, and thereby the delivery of oxygen, sufficiently to meet an increase in myocardial demand for oxygen, e.g. during physical exercise. During unstable periods CAD may manifest itself clinically as acute coronary syndrome (ACS). ACS is a generic term comprising the conditions of unstable angina pectoris (UAP), myocardial infarction (MI) and sudden coronary death (10).

The treatment of coronary artery disease aims at relieving symptoms as well as preventing the progression of atherosclerosis, thereby reducing the risk of the development of acute coronary syndrome (2).

The principal treatment modalities for CAD are lifestyle changes, pharmacological treatment and myocardial revascularisation (2). Myocardial revascularisation refers to invasive strategies to restore blood flow in stenosed or occluded coronary arteries and comprises coronary artery bypass grafting (CABG) and percutaneous coronary intervention (PCI) (5). In contrast to CABG, PCI aims at restoring the blood flow of the

native coronary artery or arteries by balloon dilatation with or without stent implantation in stenosed or occluded sections.

The primary indication for PCI is to improve symptoms of coronary artery disease-angina or an anginal equivalent, or, if the patient is truly asymptomatic, to treat a coronary stenosis associated with objective evidence of myocardial ischemia on myocardial imaging (17).

PCI has been the subject of more Randomised Control Trials (RCTs) than any other intervention. However, data regarding PCI in certain patient subgroups such as the elderly is still limited though elderly population is the fastest growing population worldwide with high prevalence of coronary artery disease. One reason for this is that elderly patients are often excluded from trials because of their generally high rates of co-morbidities (7).

Furthermore, old age in itself is frequently used as an exclusion criterion in RCTs (8, 9).

The paucity and inconsistency of data on the use of PCI in the elderly has several implications. The under-representation

of elderly patients in RCTs restricts the applicability of prevailing guidelines in clinical practice (4, 8). Elderly patients have been found to be less likely than younger patients to undergo PCI, partly because some of the existing data suggest that age is associated with negative outcomes (12-14).

The finding that elderly patients undergo PCI to a lesser extent than younger patients holds even after adjusting for contraindications and co-morbidities that may be of relevance (12-14). The suggestion that elderly patients are sometimes withheld PCI solely because of their age is contrary to prevailing ethical principles. Even if age itself has in some studies been found to be a predictor of death and other adverse outcomes of PCI (9, 10, 11, 15) the elderly constitute a heterogeneous group. The term ‘elderly’ is a broad term comprising the “young” old (65-74 years), the “older” old (75-84 years) and the “oldest” old (≥85 years) (16). Moreover, the elderly have considerable individual variation in co-morbidities and physical capabilities (10). In view of the heterogeneity of the elderly patient group it is likely that some elderly patients have better prospects of gaining from PCI than others.

Further studies are needed to allow for physicians to make well-founded decisions and so optimizing the use of PCI in elderly patients.

:Aim of The Work

We aim to determine the in-hospital outcome of patients aged 65 years or more undergoing elective percutaneous coronary intervention (PCI), and compare it with in-hospital outcome of patients aged less than 65 years in Ain Shams University hospitals.

STUDY DESIGN:

This study is going to be conducted at Ain Shams university hospitals and to enrol patients undergoing elective PCI. Data will be collected both retrospectively and prospectively for 100 patients divided into two groups. Group ‘A’ consisting of 50 patients aged 65 years or more & Group ‘B’ consisting of 50 patients aged less than 65 years. Patients in both groups will be matched in other risk factors (other than age), such as Diabetes Mellitus, Hypertension, Smoking, Dyslipidemia. We defined major adverse cardiovascular events (MACE) as in-hospital mortality, repeated target vessel revascularization, and re-infarction.

Exclusion criteria:

- Patients presented with Acute Myocardial Infarction (AMI).
- Contraindications for coronary intervention as acutely ill debilitated patients or blood dyscrasia.

Subject & Method:

All patients will be subjected to the following:

1. Taking full history.
2. Clinical examination, ECG, echocardiography.
3. Biochemical evaluation, mainly serum creatinine level.
4. Peri-procedural Type & site of coronary lesion including TIMI Flow grading.
5. Evaluation of Re-flow.
6. Post PCI In hospital evaluation of clinical improvement & observation for any major adverse cardiovascular event (MACE) such as in-hospital mortality, repeat target vessel revascularisation, re-infarction.

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