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Prevalence of Depression In Patients After Primary PCI Attending Cardiac Rehabilitation Program

Thesis

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By

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List of Abbreviations

Abb.	Full Term
ACCF	American College of Cardiology Foundation
ACI	Angiotensin converting enzyme inhibitor
ADLs	Activities of daily living
AHA/ACC	American College of Cardiology/ American Heart Association
BB	Beta blocker
BBB	Bundle branch block
BDI	Beck Depression Inventory
BMS	Bare metal stents
CARISMI	Cardiac Arrhythmias and Risk Stratification After Myocardial Infarction
CABG	Coronary artery bypass grafting
CBT	Cognitive Behavioral Therapy
CCS	Canadian cardiovascular society
CHD	Coronary heart disease
CR	Cardiac rehabilitation
CREATE	Canadian Cardiac Randomized Evaluation of Antidepressant and Psychotherapy Efficacy
cTn	Cardiac troponin
CVA	Cerebrovascular accident
CVD	Cardio vascular disease
D2B	Door -to-balloon times

DAPT	Dual antiplatelet therapy
DASS 21	Depression Anxiety Stress scale 21
DES	Drug eluting stent
DSM-5	Diagnostics and Statistical Manual of Mental Disorders , Fifth Edition'
ECA	Epidemiologic Catchment Area
ECG	Electrocardiographic
ENR ICHD	Enhancing Recovery in Coronary Heart Disease
ESC	European Society of Cardiology
FT	Fibrinolytic therapy
HADS	Hospital Anxiety and Depression Scale
HRV	Heart rate variability
ICH	Intracranial hemorrhage
IP	Interpersonal
LD	late-life depression
LVT	Left ventricular mural thrombus
MACE	Major adverse cardiovascular events
MDD	Major depressive disorder
MI	Myocardial infarction
NHFA	National Heart Foundation of Australia guidelines
NHLBI	National Heart, Lung and Blood Institute
NHMRC	National Health and Medical Research Council
NICE	National Institute for Health and Care Excellence
NO	Nitro oxide

NYHA	New York Heart Association
PCI	Percutaneous coronary intervention
PD	Psychodynamic
PHQ-9	Patient Health Questionnaire-9
P-PCI	Primary Percutaneous Coronary Intervention
PRIME-MD	Primary Care Evaluation of Mental Disorders
PSD	Post stroke depression
RCTs	Randomized controlled trials
RR	Relative risk
SAD HART	Sertraline Antidepressant Heart Attack Randomized Trial
SES	Socio anomic state
STEMI	ST elevation myocardial infarction
SSRI	Selective serotonin reuptake inhibitors
TLR	Target lesion revascularization
URL	Upper reference Limit
USPSTF	US Preventive Services Task Force
VaD	Vascular depression
99mTc	Technetium (99mTc) sestamibi

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INTRODUCTION

Depression and coronary artery disease have a bidirectional relationship, i.e., coronary artery disease can cause depression and depression is an independent risk factor for coronary artery disease and its complications; depression may not only contribute to unhealthy lifestyle and poor adherence to treatment, but also increases all causes of cardiac mortality ***(Kuller et al., 2006)*** .

The World Health Organization estimates that cardiovascular disease and depression are currently the two most common causes of disability in high-income countries ***(Sipötz et al.,2013).***

CAD continues to be a major focus of clinical and epidemiological research, where non-modifiable cardiovascular risk factors, such as age, gender, family history, and race, as well as modifiable risk factors, such as hypertension, weight, smoking, sedentary lifestyle, abnormal lipid profiles, inflammatory markers, diabetes, metabolic syndrome, and subclinical CAD, are associated with increased cardiovascular risk ***(Almdal et al., 2004)***.

Despite these findings, typically measured risk factor do not fully account for all the variation in outcomes .A number of psychological states and traits, such as depression, anxiety, anger, and stress, have also been implicated as potential risk factors for CAD ***(Baumeister et al., 2015)***.

One study found that even mild symptoms of depression can predict mortality, morbidity and poorer clinical outcomes in those with myocardial infarction ***(Lespérance et al., 2007)***.

Depression is associated with endothelial dysfunction, which in turn can cause or worsen a coronary artery event. ***(Davidson et al .,2006)***.

In CVD patients who are depressed, hyperactivity of the noradrenergic system is one important possible mechanism that may explain the association between depression and CAD .Sympathetic outflow is increased in depressed patients as compared to non-depressed patients through negative stress effects of catecholamine on the heart, blood vessels, and platelets ***(Angela et al., 2009)*** .

Treating depression is critical in patients with CAD for several reasons. Reducing emotional distress in the short-

term may improve long-term mortality in patients with CHD *(**Denollet and Brutsaert., 2001**).*

Liaison between psychiatrists and general practitioners, where psychiatrists give advice to the general practitioners, was helpful in reducing the depressive symptoms of patients with CVD ***(Gilbody et al., 2007).***

Consequently, treating depression in the context of CVD is important. There are many benefits associated with treating depression including improved quality of life, improved adherence to other therapies and, potentially, improved CVD outcomes ***(Gulliksson et al., 2011; Goldstein .,2013)**.*

AIM OF THE WORK

The prevalence of Depression in Egyptian patients with documented CAD (post primary PCI) undergoing cardiac rehabilitation program. And describe the demographic and clinical characteristics of the patients attending the Cardiac Rehabilitation Clinic - Ain Shams hospital as out patients.

Chapter (1)

Myocardial Infarction (MI)

The definition of MI requires cardiac myocyte necrosis with an increase and/or a decrease in plasma of cardiac troponin (cTn). At least one cTn measurement should be greater than the 99th percentile normal reference limit during: (1) symptoms of myocardial ischemia; (2) new (or presumably new) significant ECG ST-segment/T-wave changes or left bundle branch block; (3) the development of pathological electrocardiographic (ECG) Q waves; (4) new loss of viable myocardium or regional wall motion abnormality identified by an imaging procedure; or (5) identification of intracoronary thrombus by angiography or autopsy ***(Alpert et al., 2012)***

Types of MI

The Joint ESC/ACCF/AHA/WHF Task Force further classified MI into 5 types on cause ***(Jaffe., 2013)***

- **Type 1 (spontaneous MI)**: Related to atherosclerotic plaque rupture, ulceration, fissuring, erosion, or dissection with intraluminal thrombus in one or more of the coronary

arteries, leading to decreased myocardial blood flow or distal platelet emboli and thereby resulting in myocyte necrosis. The patient may or may not have underlying obstructive coronary artery disease (CAD).

- **Type 2 (MI secondary to an ischemic imbalance)**: MI consequent to increased oxygen demand or a decreased supply (eg, coronary endothelial dysfunction, coronary artery spasm, coronary artery embolus, tachyarrhythmia/ Brady arrhythmias, anemia, respiratory failure, hypertension, or hypotension).
- **Type 3 (MI resulting in death when biomarker values are unavailable)**: Sudden, unexpected cardiac death before blood samples for biomarkers could be drawn or before their appearance in the circulation.
- **Type 4a (MI related to percutaneous coronary intervention [PCI])**: Elevation of biomarker values (cTn is preferred) to more than 5 times in patients with normal baseline values or a rise of values over 20% if the baseline values are elevated but stable or falling. In addition, any of the following are required: (1) symptoms suggestive of myocardial ischemia; (2) new ischemic ECG changes or new BBB; (3) angiographic loss of patency of a major