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THE STUDY OF SILENT MYOCARDIAL ISCHEMIA USING EXERCISE STRESS TEST AMONG DIABETIC AND NON DIABETIC PATIENTS WITH DOCUMENTED CORONARY ARTERY DISEASE

A thesis submitted for partial fulfillment of
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List of abbreviations

ACC: American College of Cardiology.

ACEI: Angiotensin converting enzyme inhibitors.

ACIP: Asymptomatic Cardiac Ischemic Pilot.

ACS: Acute coronary syndrome.

ADA: American Diabetes Association.

AECG: Ambulatory ECG.

AHA: American Heart Association.

APMHR: Age predicted maximal heart rate.

ATP: Adenosine triphosphate.

CABG: Coronary artery bypass graft.

CAD: Coronary artery disease.

CCBs: Calcium-channel blockers.

CS: Coronary sinus.

DM: Diabetes Mellitus.

DSE: Dobutamine Stress Echocardiography.

LIST OF ABBREVIATIONS

DTI: Doppler Tissue Imaging.

ECG: Electrocardiogram.

FH: Family History

HR: Heart rate.

HTN: Hypertension.

ICU: Intensive care unit.

IHD: Ischemic heart disease.

IVCD: Intraventricular conduction delay.

IVUS: Intravascular Ultrasonography.

LAD: left anterior descending artery.

LCX: Left circumflex artery.

LMCA: Left main coronary artery.

LVH: left ventricular hypertrophy.

METs: Metabolic equivalents.

MPI: Myocardial perfusion imaging.

MRCA: Magnetic resonance coronary angiography.

MRI: Magnetic Resonance Imaging.

PCI: Percutaneous coronary intervention.

PET: Positron emission tomography.

PTCA: Percutaneous transluminal coronary angioplasty.

PVCs: Premature ventricular contrations.

RA: Right atrium.

RCA: Right coronary artery.

SMI: Silent myocardial ischemia.

SPECT: Single photon emission computed tomography.

TMS: Thallium myocardial scintigraphy.

Introduction

Silent myocardial ischemia was once thought to be uncommon feature of coronary artery disease (CAD). Lately, it was recognized as a common clinical entity. It has been estimated that probably millions of persons have silent ischemia in the asymptomatic patients. Initially, about one third of ischemic patients with CAD are silent. Subsequently, with increasing awareness, some reported that figure to be as high as 87% ***(Cohn PF, 1987)***.

The exact reason as to why certain ischemic episodes are silent is unclear. On the one hand, it may represent the earliest or mildest form of coronary disease. On the other hand, it could mean a more ominous sign as a predictor for sudden death as the angina warning system is defective. Various methods have been used to detect ischemia in patients. Treadmill exercise stress test is the commonest method employed in screening ***(deedwania and carbagal, 1990).***

*Diabetes is an independent risk factor for coronary artery disease (CAD). Prospective studies have documented an increased likelihood of sudden cardiac death and unrecognized myocardial infarction in patients with diabetes. (****Wilson PW, 1998****)*

Accordingly the usefulness of the screening for asymptomatic coronary artery disease in diabetic patients is nowadays an open issue. The prevalence of silent myocardial ischemia and painless myocardial infarction in diabetics has been reported to be higher than in no diabetics, and since the anginal pain may be masked, the diagnosis of myocardial ischemia might be missed or delayed in patients with diabetes ***(Wilson PW.1998).***

In asymptomatic patients, the presence of exercise induced ST segment depression has been shown to predict a four to five folds increase in cardiac mortality compared with those without these findings ***(Ekelund et al., 1989).***

Most patients with silent ischemia are identified retrospectively or never. In the Asymptomatic Cardiac Ischemic Pilot (ACIP) study, patients with frequent silent ischemic events were at increased risk for advanced coronary disease, including high-risk coronary anatomy such as three-vessel disease. ***(Grundy et al., 1999)****.*

Aim of the work

The aim of this work is to study silent myocardial ischemia using Exercise stress test between diabetic and non diabetic patients with documented coronary artery disease to determine whether diabetic Patients with coronary artery disease are more likely to experience silent myocardial ischemia than subjects without diabetes.