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STUDY OF THE EFFECT OF THROMBOLYTIC THERAPY ON THE LATE POTENTIALS BY SIGNAL AVERAGED ECG RECORDING IN PATIENTS WITH ACUTE MYOCARDIAL INFARCTION

SUBMITTED BY
KHALED N. LEON MS CVD.

IN PARTIAL FULFILLMENT OF THE
DOCTRATE DEGREE IN CARDIOLOGY

SUPERVISED BY

PROF. DR.
ALY AHMED IBRAHIM MD.
PROF. OF CARDIOLOGY ASU.

PROF. DR.
RAMEZ RAOUF GUINDY MD.
PROF. OF CARDIOLOGY ASU.

PROF. DR.
MONA ABU EL SAOUD MD.
PROF. OF CARDIOLOGY ASU.

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Chapter (1)

INTRODUCTION & AIM OF THE WORK

Although various modes of treatment, such as the widespread use of Beta adrenergic agents & the thrombolytic therapy have led to a reduction of the incidence of ischemia-related arrhythmias, sudden cardiac death (SCD) remains a leading cause of death in the western world.

A couple of decades ago and specifically in 1973, Stopczyk performed the first signal-averaging surface recording of electrical activity during the PR segment. (Stopczyk et al., 1973). Later on, signal averaging attracted the attention in detecting delayed ventricular activation on the body surface (Breithardt et al, 1980, Simson et al., 1981).

Fragmented electrograms can be recorded from ischemic ventricular myocardium (Klein et al., 1982). The area from which these delayed electrograms originate may be foci of reentrant ventricular tachyarrhythmias. (El Sherif & Hope 1977).

Retrospective clinical studies have documented a close association between the presence of ventricular tachycardia (VT) and ventricular fibrillation (VF) in patients with coronary artery disease (CAD) and myocardial infarction (MI). It has been suggested that screening the patients with CAD for the

presence of LP's may identify those at high risk for episodes of VT & / or VF. (Breithardt and Borggrefe 1987).

Since the era of thrombolysis, both in-hospital and post-hospital discharge mortality have been reduced by 25%. Early mortality is related predominantly to pump failure while most deaths after myocardial infarction are presumably arrhythmic. Sustained VT most often degenerates to VF is the primary causes for sudden death.

SCD occurring after MI, particularly in the first 3 to 6 months is well recognized. The incidence is highest in patients with ventricular dysfunction. Most studies of this phenomenon have concluded that reentry is the dominant cause of tachyarrhythmias resulting in SCD .The postulate that slowed conduction is the most important prerequisite for the reentrant arrhythmias is supported by the finding of Late ventricular arrhythmias on the signal average electrograms in the patients who are generally at the highest risk for malignant ventricular arrhythmias & SCD (Zipes and Jalife 1995).

Several clinical variables predict the probability of SCD, including LV ejection fraction, spontaneous ventricular arrhythmias on the Holter monitoring, measures of the autonomic tone (heart rate variability), and the results of SAECG. However, McClements noticed a reduced incidence of LP's in patients with a patent Infarct related coronary artery (IRCA), which was striking. (McClements et al., 1991).

Although the SAECG retains its prognostic value in the group of patients treated with Thrombolytic agents, yet it is not clear to what extent the SAECG is affected by thrombolysis (Pablo D, & El Sherif N, 1994).

AIM OF THE WORK

This study was conducted, in an attempt to have better approach in caring for our ischemic patients, who sustained acute MI trying to segregate this subgroup of patients who are liable to develop early post MI arrhythmic complications with a rather high mortality rates from the other low-risk category.

First: To document the effect of thrombolysis on the SAECG.

Secondly is to find out the relationship between SAECG and the LV functions as determined by Echocardiography.

Thirdly is to correlate between the presence of LP's on the SAECG and the ventricular ectopic activity as assessed by continuous ECG monitoring (Holter monitoring).

Finally, our aim is to discover the interrelation between the incidence of abnormal SAECG and the patency of the infarct related coronary artery, utilizing coronary angiography.