S UNIVERSITY
OF MEDICINE

THE ROLE OF INTRAVENOUS DILTIAZEM FOR ACUTE NTROL OF RAPID ATRIAL FIBRILLATION

BY
HASSAN HAMED MOHAMED KHALAF

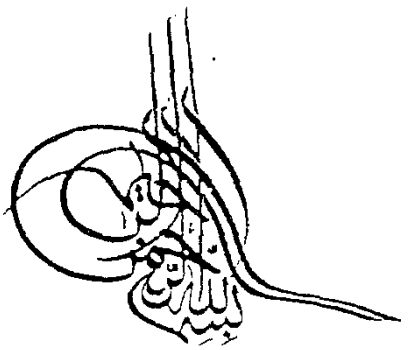
THESIS
Submitted in partial fulfillment
For Master Degree
IN
Cardiology

Supervisors

Dr.
IBRAHIM NASSAR
Asst. Professor
Cardiology
Faculty of Medicine
Ain Shams University

Dr.
SAID A. KHALID
Asst. Professor
of Cardiology
Faculty of Medicine
Ain Shams University

1992

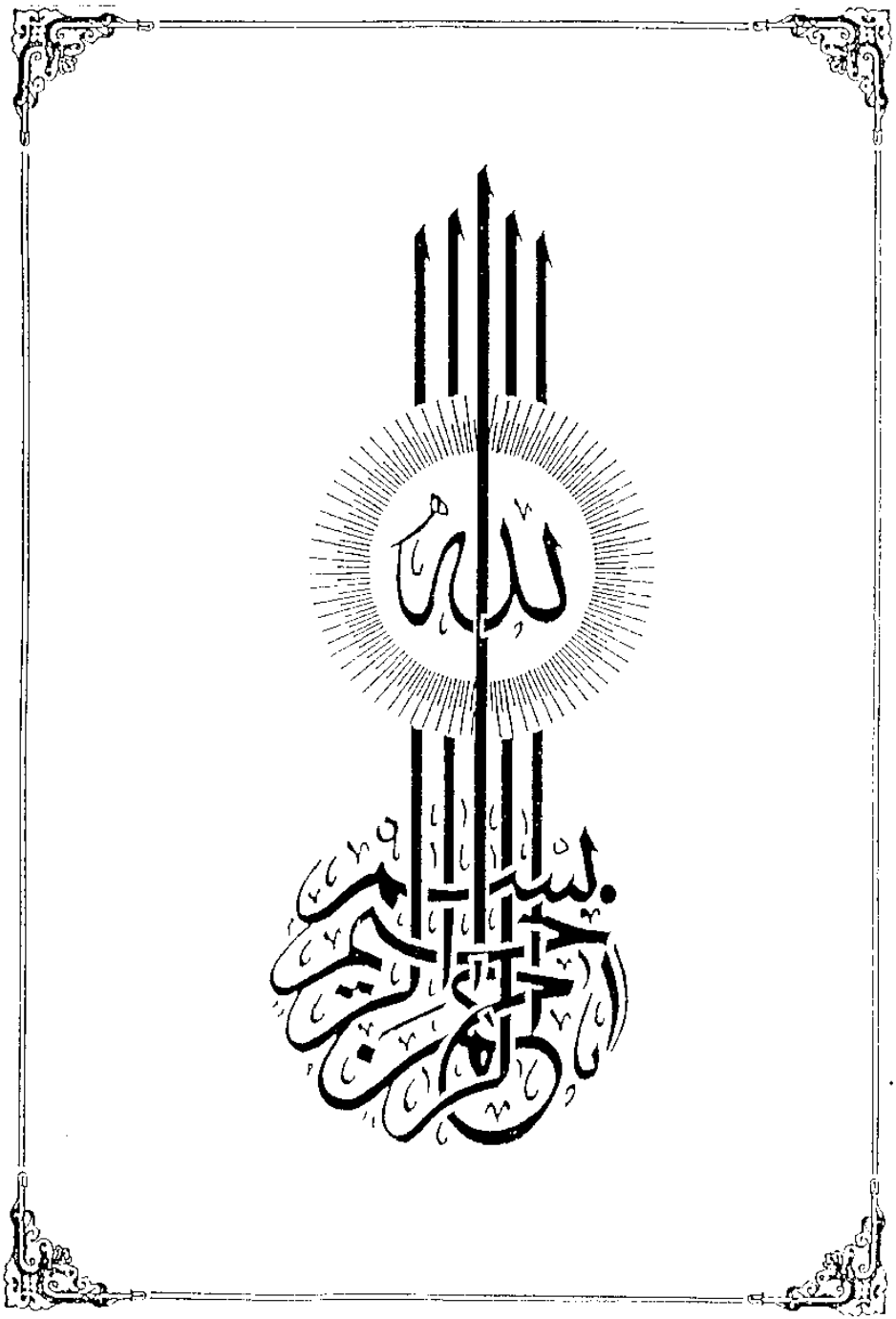


« قال تعالى »

وَيَسْـَٔلُونَكَ عَنِ ٱلرُّوحِ ۖ قُلِ ٱلرُّوحُ مِنْ أَمْرِ رَبِّى وَمَآ أُوتِيتُم
مِّنَ ٱلْعِلْمِ إِلَّا قَلِيلًا ﴿٨٥﴾

« صدق الله العظيم »

« سورة الإسراء »



Ain Shams University
Faculty of Medicine

THE ROLE OF INTRAVENOUS DILTIAZEM FOR ACUTE CONTROL OF RAPID ATRIAL FIBRILLATION

BY

HASSAN HAMED MOHAMED KHALAF

THESIS

Submitted in partial fulfillment

For Master Degree

In

Cardiology

Supervisors

Dr.

AHMED IBRAHIM NASSAR

Asst. Professor

of Cardiology

Faculty of Medicine

Ain Shams University

Dr.

SAID A. KHALID

Asst. Professor

of Cardiology

Faculty of Medicine

Ain Shams University

1992

ACKNOWLEDGEMENT

It is an absolute obligation on the doctor to use only drugs about which he has troubled to inform himself. My work is presented to ALLAH ALRAHMAN, deepest thankes are always first for his endless graces; My sincere thanks and gratefulness are then directed to Dr. Ahmed I Nassar asst. prof. of cardiology Ain Shams university for his kind supervision and support. I am deeply indepted to Dr. Said A Khalid asst. prof. of cardiology Ain Shams university for his continuos help, guidnce and encounagement during this study. My deep apperciation to Dr. Dhiya'a Abu Shokah head of cardiology departement National Heart Institute for his great and kind help. I hope I could express my love to my parants, my sister and my brothers Dr. Mohamed and Engeneer Eihab who spent the tiresome nights before the microprocessor to type and retype this work.

TO ALAH

THEN

TO MY FAMILY

INDEX

AIM OF THE WORK

* Calcium ions play a critical role in many vital biologic processes in all cells. Within the cardiovascular System, calcium is importantly involved in the activation of cardiac cells, the genesis of the actior potential, the coupling of electrical activation to myocardial contraction and the constriction of vascular smooth muscle. Calcium antagonists, which block the entry of calcium into cardiac and smooth muscle cells, represent one of the most important developments in cardiovascular therapeutics in the latter half of this centary (Braunwald E, 1987).

* TERMINOLOGY AND CLASSIFICATION :

In the 1960_s the concept of calcium antagonism was pioneered in Europe independently in Fleckenstein 's and Golfraind 's laboratories. by studies on cardiac muscle and on vascular smooth muscles.Drugs of several chemical families have been identified as calcium antagonists. (Godfraind T, 1987).

A calcium antagonist, a compound that does not necessarily (and in fact is unlikely to) compete with Ca^{2+} for a binding site may be defined as a drug that alters the cellular function of calcium, by inhibiting its entry and [or] its release and [or] by interfering with one of its intracellular actions. Subgroups of calcium antagonists can therefore be defined. Those that specifically inhibit Ca^{2+} entry into cells

due to tissue excitation by various stimuli have been called calcium entry blockers (Godfraind T, 1981). This antagonistic activity is most likely due to interaction with calcium channels activated by membrane depolarization or by receptor stimulation, and, in these circumstances, these agents may also be termed calcium channel blockers or inhibitors. When blockade occurs at the level of the "slow" channels in cardiac tissues, the term slow channel blockers has been used (verapumil, nifedipine, diltiazem and some of their derivatives). The designation "calcium agonist" has been introduced recently to characterize dihydropyridine derivatives that increase the probability of calcium channel opening instead of blocking them. The whole group of agents affecting calcium movements has recived the general denomination of calcium modulator (Godfraind T, 1986) which may be divided into facilitators or inhibitors "calcium antagonists".

A useful way to subclassify calcium modulators is to take into account the subcellular localization of their site of action "Table 1".

* AIM OF THE WORK

The aim of this study is to evaluate the efficacy and safety of intravenous diltiazem for acute control of rapid atrial fibrillation on the base of ventricular rate response.

INTRODUCTION AND REVIEW OF LITERATURE

* CALCIUM ANTAGONISTS