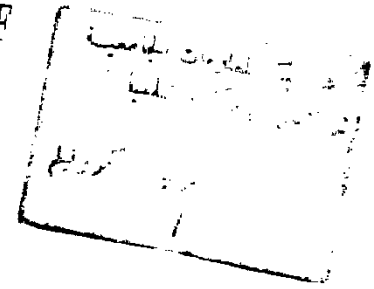
ECHO DOPPLER EVALUATION OF CARDIAC STRUCTURE AND FUNCTION IN ELDERLY SUBJECTS WITH ISOLATED SYSTOLIC HYPERTENSION



THESIS

SUBMITTED FOR PARTIAL FULFILMENT

OF THE MASTER DEGREE IN CARDIOLOGY

BY

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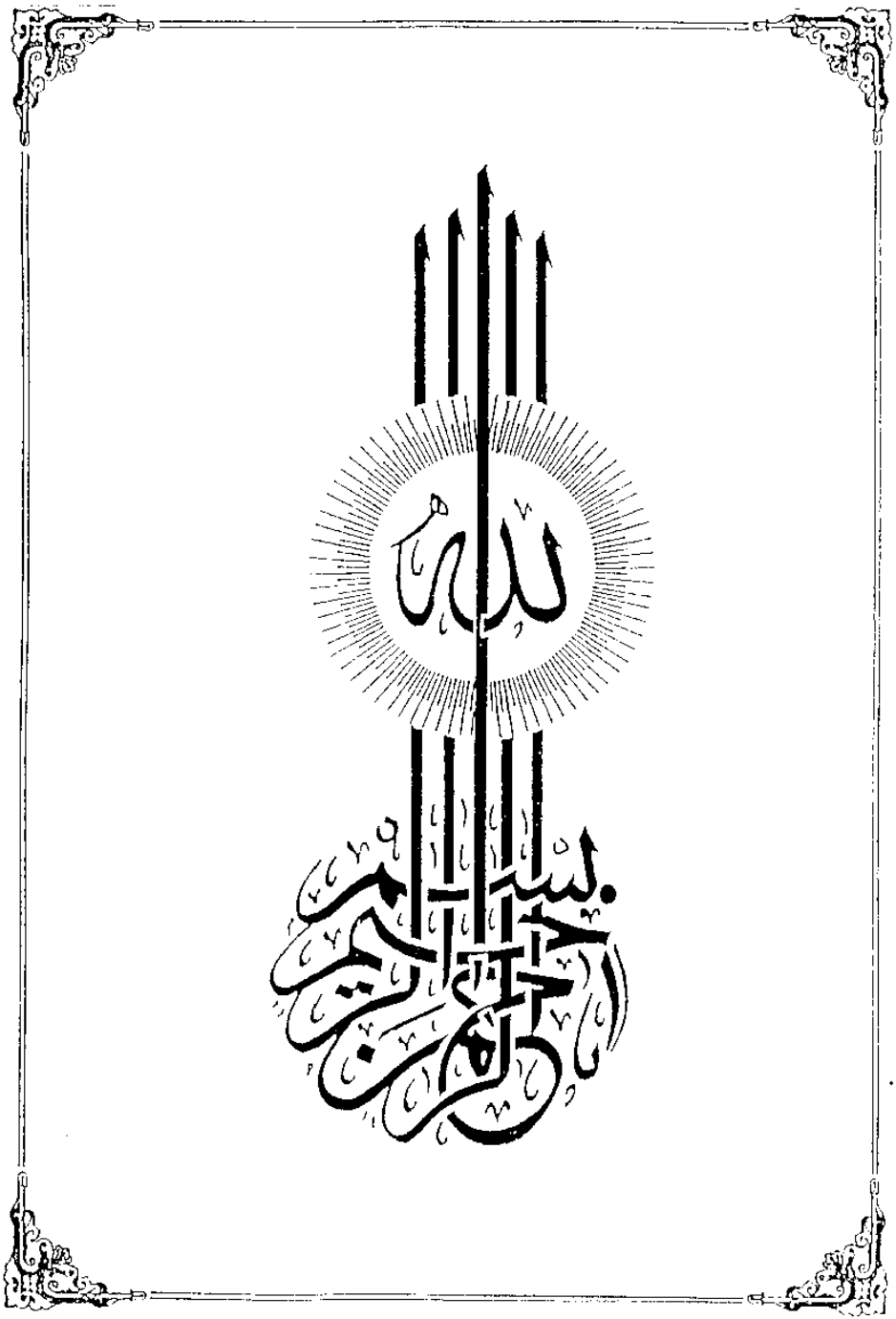

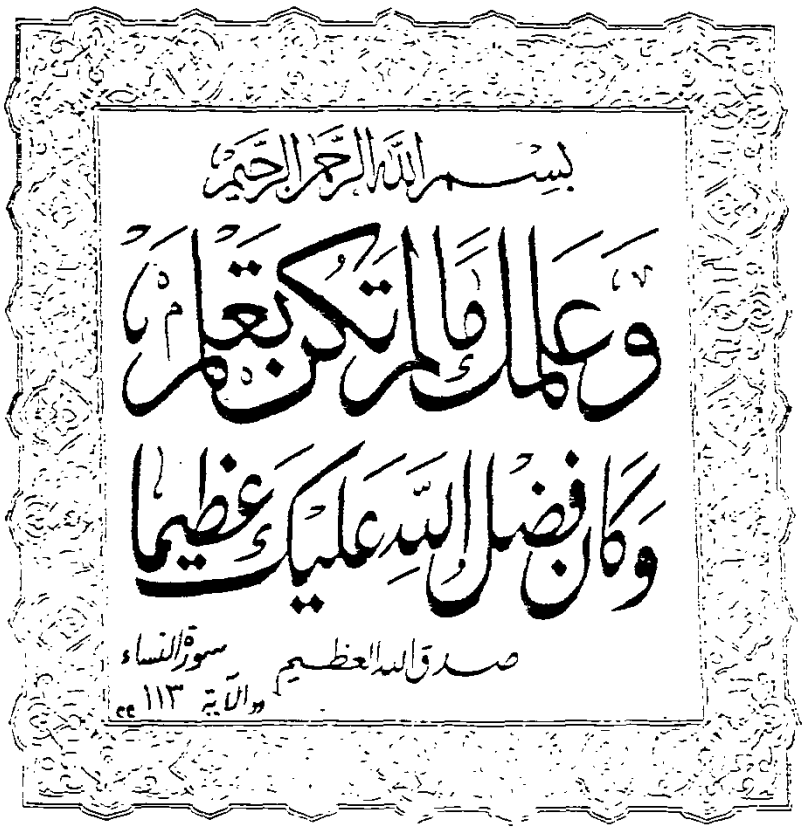

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Acknowledgment

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Introduction

INTRODUCTION:

Stephan Hales (1677-1761) was the first person to investigate blood pressure (Hurst.,1990). Elevated blood pressure is recognaized as a powerful precursor of the major cardiovascular diseases, including coronary heart disease, cerebrovascular disease, cardiac failure and occlusive peripheral arterial disease and renal failure (Kannel et al., 1972).

Hypertension is well known major risk factor for cardiovascular morbidity and mortality (kannel, 1974).

Although most studies have focussed on diastolic hypertension, it is clear that systolic hypertension is at least as important as a predictor of risk for cardiovascular disease.

Systolic hypertension is associated with a substantial (two to five fold) excess risk of death from all causes and from cardiovascular disease in particular. (Kennel et al, 1980, Rutan et al, 1988; Colandrea et al; 1970).

Isolated systolic hypertension is common among the elderly particulary in persons above 60 years (Wilking, et al., 1988).

Although the benefits of treating diastolic hypertension are well established, no complete data are available as regards the cardiac functions in ptients with isolated systolic hypertension, and the effects of the

antihypertensive treatment on the incidence of cardiovascular disease in those patients (Pearson et al., 1991).

Aim of the work

AIM OF THE WORK

The objective of this study is to describe the cardiac structural and functional adaptation to isolated systolic hypertension in an elderly group of subjects.

Review of literature

ISOLATED SYSTOLIC HYPERTENSION

Definition of Isoloted Systolic Hypertension

Isolated systolic hypertension (ISH) is defined as systolic blood pressure of 160 mmHg or greater when the diastolic blood pressure is less than 95 mm Hg (Wilking et al.,1988).

The 1984 Report of Third Joint National Committee on the Detection, Evaluation and Treatment of Hypertension (JNC III) defined the Isolated Systolic Hypertension as systolic blood pressure 160 mm Hg or greater and diastolic blood pressure 90 mmHg or lesser.

Classification of Systolic Hypertension

The JNC III, report recommends the classification for systolic blood pressure when diastolic blood pressure is less than 90 mm Hg;systolic blood pressure less than 140 mm Hg is consider normal ; systolic blood pressure 140-159 mm Hg is border line;systolic blood pressure $\geqslant$ 160 mm Hg is ISH.

Hemodynamic of Isolated Systolic Hypertension:

Hemodynamic studies of isolated systolic hypertension have indicated that in those over age 35 years there is generally a normal heart rate, a decreased left ventricular ejection rate and a reduced cardiac index. (Frohlich et al, 1969.) There is also an increased peripheral resistance, a disproportionate rise in systolic pressure relative to diastolic pressure and a widening pulse pressure. These changes could reflect atherosclerotic loss of arterial compliance.

In persons under age 35 years with isolated systolic hypertension, the hemodynamics may differ. In this age group there is generally a hyperdynamic circulation as indicated by an increased cardiac output and heart rate and a normal peripheral resistance. (Brest and Hadded, 1976) over time this may evolve into the pattern of normal cardiac output with high peripheral resistance characteristic of essential hypertension.