ARRHYTHMIAS IN DILATED CARDIOMYOPATHY IN RELATION TO THE LEFT VENTRICULAR SYSTOLIC AND DIASTOLIC FUNCTION

Thesis

Submitted In Partial Fulfillment
For The Master Degree In Cardiology

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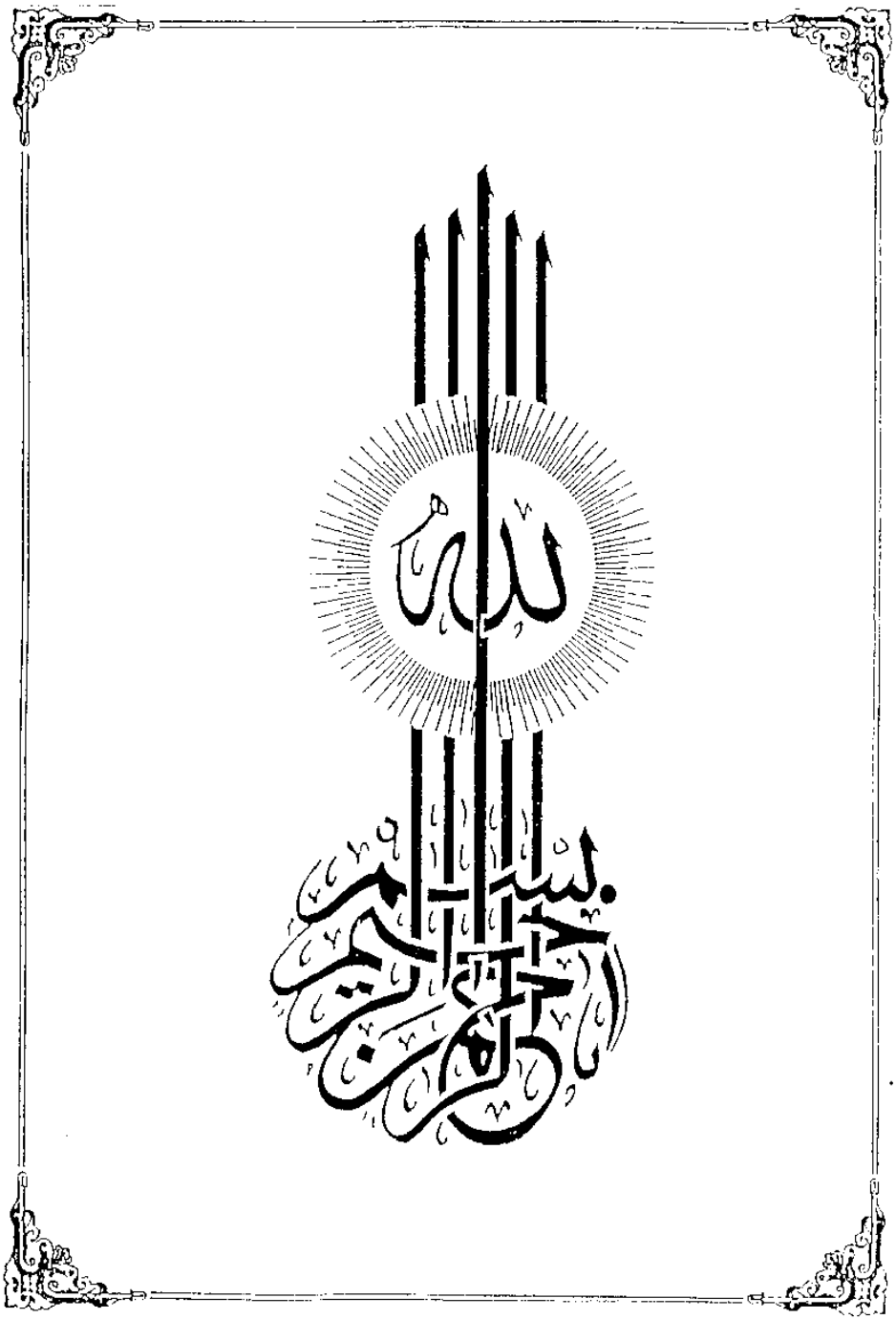

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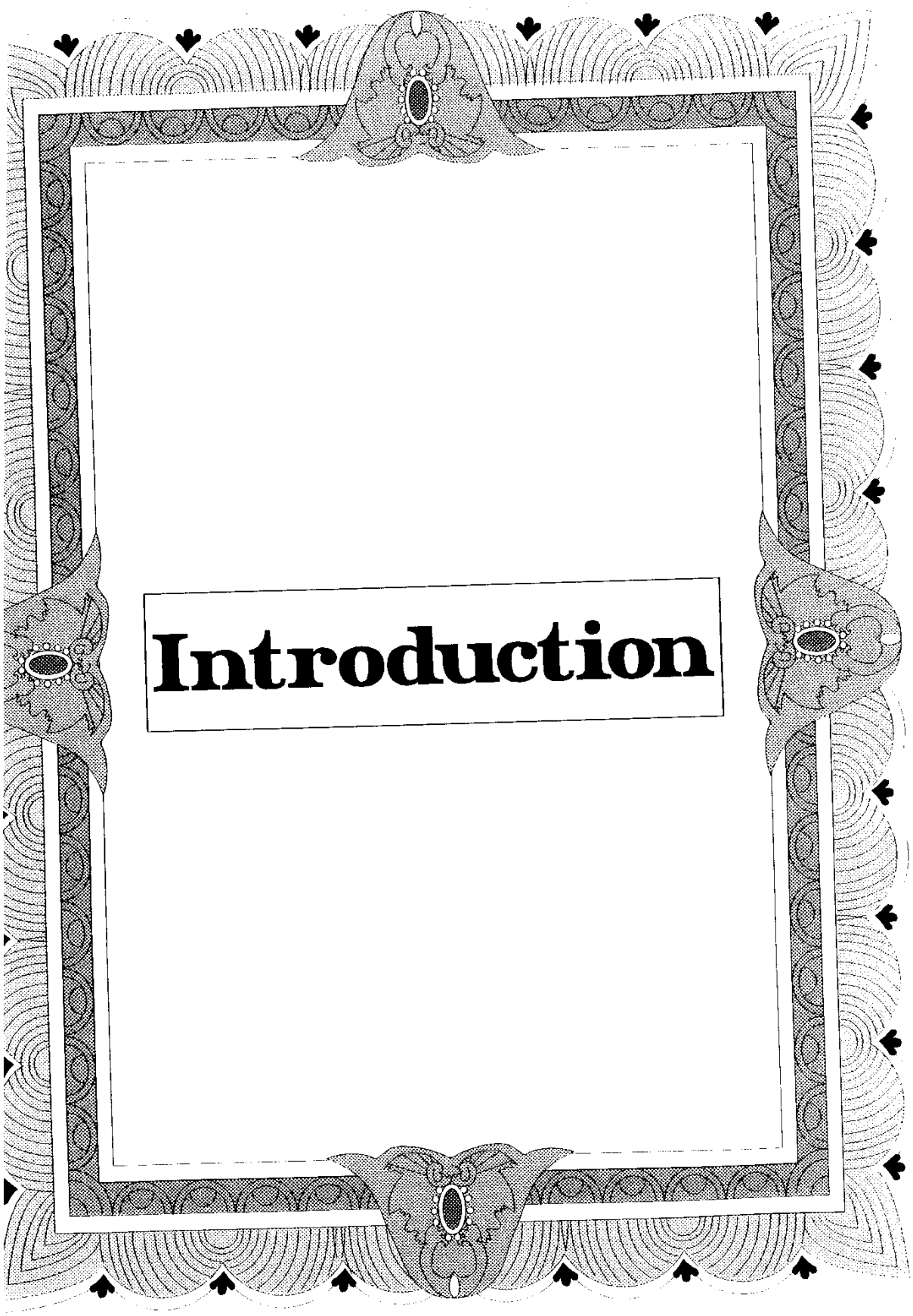

Introduction

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The term cardiomyopathy was originally introduced by "**Wallace dgen in 1957**" and was applied to heterogeneous group of muscle heart eases of unknown cause or causes **(Stephen et al., 1987).** hophysiologically, they are categorized into three relatively distinct ities: dilated cardiomyopathy, hypertrophic cardiomyopathy and trictive cardiomyopathy **(Benard et al., 1987).**

Dilated cardiomyopathy is characterized by cardiac dilatation and stolic dysfunction. The condition was described by the World Health ganization as dilatation of the left, right, or both ventricles, often severe th impaired systolic function and invariably accompanied by hypertrophy, d as a part of the WHO definition, heart muscle disease of unknown cause associated with disorders such as systemic or pulmonary hypertension, ronary artery disease, valvular heart diseases or congenital cardiac normalities should be excluded **(Tari et al., 1992).**

Dilated cardiomyopathy has traditionally been considered a disease ith a severe prognosis often leading to sudden death. Among the many ndefined aspects of dilated cardiomyopathy, the role of ventricular rrhythmias represents a continuing emgima whereas a high prevalence of omplex ventricular arrhythmias has been reported in dilated ardiomyopathy, their clinical relevance relation to pump function and rognostic role are still unresolved issues. In some studies ventricular rrhythmias had no predictive value for cardiac death, whereas in others hey form a major risk for sudden death or global cardiac mortality **Atenello et al., 1992).**

Aim of the work

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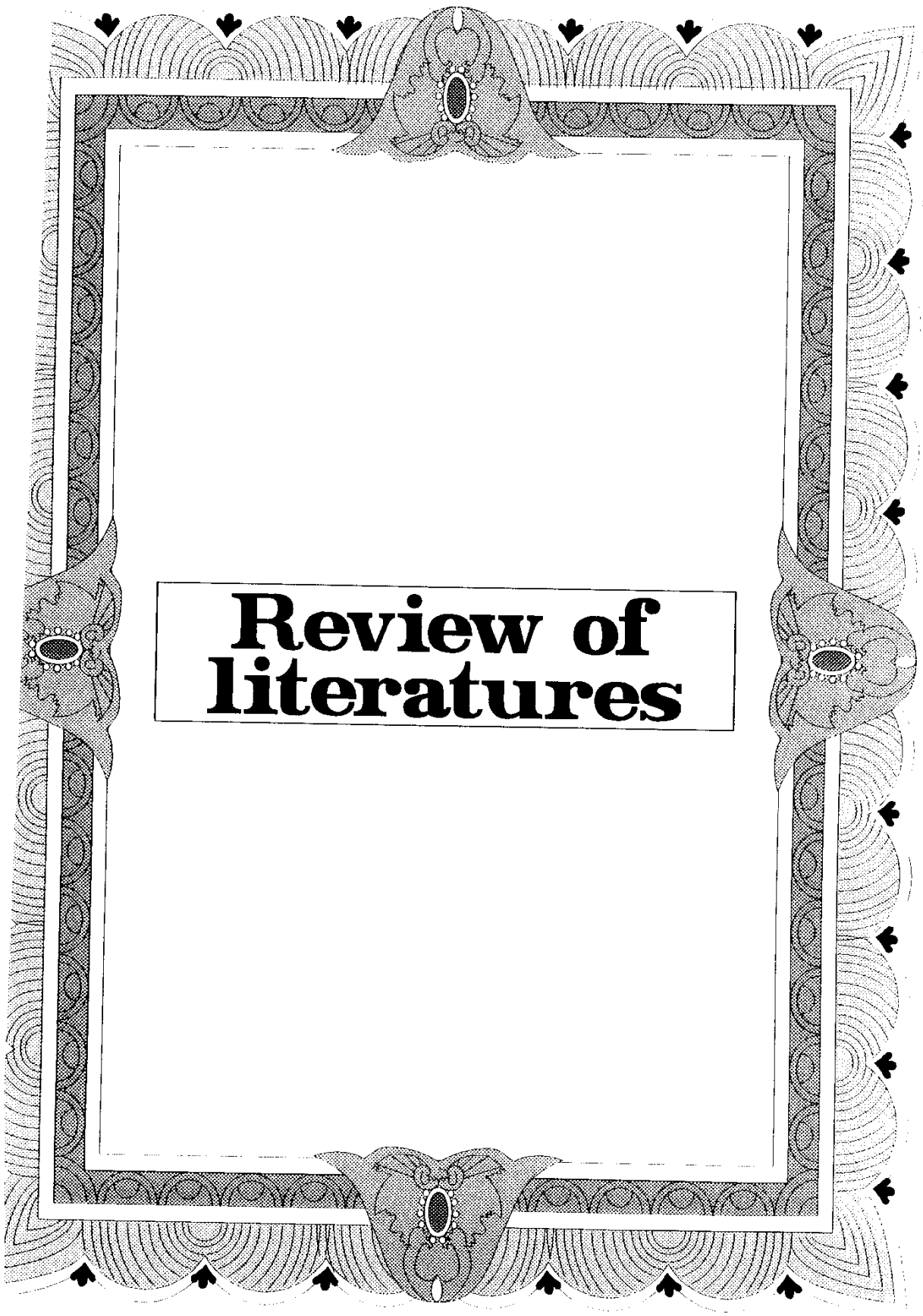
In this study we aimed to study the incidence of arrhythmias in ients with dilated cardiomyopathy and to study the relation between the 'erity of these arrhythmias and the severity of impairment of left ıtricular systolic and diastolic function.



Review of literatures

The Electerocardiogram in dilated cardiomyopothy

The electrocardiogram is abnormal, but the changes are usually non cific, with flat or inverted T waves. Common electrocardiographic erns in patients with dilated cardiomyopathy are those of left bundle nch block which is present in about 20 % of patients, left ventricular ertrophy and poor R wave progression not attributed to either of the first ***"marriott et al., 1962 "***

ght bundle branch and complete atrio- ventricular block are not common en though His bundle show a high prevalence of H-Q interval olongation ***"probst et al., 1979".***

Q waves may present in the precordial leads, mimicking myocardial arction ***"Gaut et al 1979"***

Atrial electrocardiographic abnormalities in the form of negative - P - ave in V1 that exceeds 0.03 m Sec is often present, also atrial fibrillation curs in 15-20% of patients, atrial flutter, junction rhythm, and praventricular tachycardia, first degree and complete heart block and ntricular tachycardia have all been reported ***"Johnson et al, 1982"***

Patients with dilated cardiomyopathy consisted about one fourth of all atients in whom ambulatory recordings showed bursts of non sustained entricular tachycardia **"Havold, et *al 1992"***

The incidence of frequent and complex ventricular ectopy during

onged ambulatory ECG monitoring is high, this has prognostic lications according to some, but whether therapy as effective as another, et controversial issue.

During Holter monitoring up to 90 % of patients have been shown to e multiform ventricular premature contractions, ventricular pairs or ıtricular tachycardia, such arrhythmias may be present in normal people to a far lesser extent than in patients with cardiac diseases including ated cardiomyopathy. "**Stephen *et al 1987.***

Isolated premature ventricular contractions are universal, and most tients have complex ventricular activity which is arbitrarily defined as hythmias of grade 3 or higher with the use of a modified lown grading stem -more than 40 % of all patients have at least one episode of non stained ventricular tachycardia "NSVT" (3 or more consecutive ntricular beats, recorded in 24- hour period; the majority of these rhythmias are asymptomatic ***"Paul Tamburro, et al 1992***

upraventricular arrhythmia in dilated cardiomyopathy :

Supraventricular arrhythmias are commonly detected by ambulatory 4- hour electrocardiographic monitoring and the incidence of such rrhythmias was found to be : supraventricalar premature beats in 65 % of atients, atrial fibrillation in 16.9 %, paroxysmal supraventricular achycardia in 7.7 % and paroxysmal atrial fibrillation in 9.2 % of all

ents *"Neri et al ...1987"*

So the most common supraventicular arrhythmias to occur with ted cardiomyopathy are supraventricular premature beats, then atrial illation and the least one to occur is supraventricular tachycardia *ngelli et al...1985"*

systemic embolism is a well recognized complication of dilated idiomyopathy, it occurs in about 18 % of patients who are not taking rfarin but did not occur when the drug is taken *"Harvy et al 1984"*

Atrial fibrillation is not a prerequiste for embolism in 10 patients ose idiopathic dilated cardiomyopathy complicated by systemic bolism, two had atrial fibrillation. *"Johnson et al ...1982"*

Atrial fibrillation or flutter is considered to form a significant risk ctor for one mortality in patients with idiopathic dilated cardiomyopathy *Unverferth et al 1984"*

entricular Arrhythmias In Dilated Cardiomyopathy. ncidence:

Most studies on dilated cardiomyopathy have focused mainly on ongestive heart failure, with little attention to arrhythmias despite onsiderable evidence that ventricular arrhythmias and sudden death are nportant correlating in this disease. *"Johnso et al ... 1982"*

Recently many studies were conducted to evaluate the dence and forms of ventricular arrhythmias in patients with dilated liomyopothy *"Neri et al ...1987"*

Several investigators examined Vertricular arrhythmias in dilated diomyopathy with controversial results, the number of patients was often ıtively small, and diagnostic criteria were very heterogenous *"Rromeo et ..1989"*

Statistical data and statistical methods varied widely, in a study by **nata et al,** the prevalence and characteristics of ventricular arrhythmias Holter monitoring were evaluated in 218 patients with invasively cumented idiopathic dilated cardiomyopathy to clarify their relation to mp function and their prognostic role, ventricular arrhythmias were served in 205 patients "94%" and very high grade "ventricular paris or ntricular tachycardia" in 130 patients "60%", no simple or multiform ntricular premature complexes were present in 88 patients "41%" ntricular pains in 32% *"Renata et al., 1992"*

Ventricular arrhythmias "multiform ventricular premature complexes ıris and tachycardia was also found to be in range of 80-95% *"Neri et al 991"*

Despite the frequent detection of high grade ventricular arrhythmias, ıost patients with dilated cardiomyopathy are a symptomatic during Holter

itoring *"Meintz et al 1984"*

Ventricular arrhythmias during effort in dilated cardiomyopathy have been systematically investigated, in a study by Haissaguerre et al, 28% 13 patients develop ventricular arrhythmias during exercise stress ing, however correlation with Holter monitoring findings was possible y in a minority of their cases *"Renotto et al., 1992"*

The number and complexity of ventricular arrhythmias in dilated diomyopathy seems to be higher than in any other cardiac disease

In patients with hypertrophic cardiomyopathy, ventricular tachycardia s detected in 26% using 24 hours Holter monitoring and multiform ntricular extrasystoles were found in 69% *"Mekenna et al 1980"*

In patients with myocardial infarction, the prevalence of ventricular chycardia is 12% *"Bigger et al ...1983"*

The prevalence of ventricular tachycardia was 42% in all patients and)% in patients with ejection fraction less than 40%, thus every other ıtient with clinically relevant idiopathic dilated cardiomyopathy had ntricular tachycardia on 24 Holter monitoring *"Olshausen et al 1984"*

The frequency of high grade ventricular arrhythmias found in healthy ubject has been reported to be less than 15% *"Kostis et al 1981"*