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DEMOGRAPHIC PROFILE AND RISK FACTORS OF ISCHEMIC CARDIOMYOPATHY: A STUDY FROM A TERITIARY CARE CENTRE

Medicine

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ABSTRACT

Aim and Objective: To study demographic profile and risk factors like Age, Sex, local area of patient, hypertension, diabetes, obesity, addictions and family history .

Materials and methods: This is a prospective observational study done on 50 patients with Ischemic cardiomyopathy admitted in SVRR Govt. Hospital, Tirupathi in ICU (intensive care unit) and wards during the period from 2011 -2014. All patients were evaluated by taking history regarding demographic profile and risk factors like Age, Sex, local area of patient, hypertension, diabetes, obesity, and addictions. Routine blood investigations and ECG (electrocardiogram), ECHO (echo cardiography) were done in all patients.

Results: Of 50 patients studied, 39(78%) males, 11(22%)females. Majority are in age group of 51-60 years. 35(70%)patients were from urban areas.44% (22) were both alcoholics and smokers, 10% were only alcoholics and 6% were only smokers, rest of 32% patients have no substance abuse but presented with Ischemic cardiomyopathy.10 (20%)patients were having positive family history. Risk factors like Hypertension, Diabetes, Obesity, Overweight were seen in 32(64%),22(44%),20(40%),20(40%)patients respectively.

Conclusions: Ischemic cardiomyopathy is more common in males compared to females. Smoking and Alcohol consumption has linear relationship with Ischemic cardiomyopathy. Hypertensive patients are more prone for ischemic cardiomyopathy than Diabetic patients. Routine screening and early detection and treatment of hypertension and diabetes decrease the morbidity and mortality from patients going into ischemic cardiomyopathy.

KEYWORDS

Ischemic Cardiomyopathy, Diabetes, Smoking, Alcoholism, Hypertension.

INTRODUCTION:

Ischemic cardiomyopathy is sometimes applied to describe diffuse dysfunction occurring in the presence of multivessel coronary artery disease.[1] A definition for ischemic cardiomyopathy has been arbitrarily set at a requirement for a greater than 70 percent stenosis in a major epicardial coronary artery, although pathological studies have reported greater degrees of disease.[2]

CAUSES OF ISCHEMIC CARDIOMYOPATHY

1. Epicardialcoronary atherosclerosis.
2. Vasculitic process (e.g., Takayasu'sarteritis).
3. Congenital abnormalities (including aberrant coronary arteries).
4. Embolic conditions (e.g., atrial fibrillation, endocarditis, thrombophilic states).
5. Cardiac allograft vasculopathy.
6. Microvascular ischemia.[3]

The risk factors for CaronaryArtery Disease are broadly classified as modifiable and non-modifiable risk factors. Modifiable risk factors include hypertension, diabetes mellitus, dyslipidemia, obesity, and smoking. Non-modifiable risk factors include age, sex, race, and family history for CAD(coronary artery disease). The Systematic Coronary Risk Evaluation system is recommended to assess an individual's total cardiovascular risk. CAD is closely related to life-style and modifiable physiological factors, and risk factor modification has been shown to reduce cardiovascular morbidity and mortality. CAD is the most common cause of mortality in India,homing an approximately one-sixth of the world population. Hence, understanding the predominant risk factors among the Indian Population is important. Furthermore, the South Asian population, especially that of the Indian subcontinent, is believed to have a higher risk and prevalence of CAD as compared with European and African population.[4]

Present study is done to determine demographic profile, risk factors and outcome of patients with ischemic cardiomyopathy.

METHODS:

This is a prospective observational study done from 2011-2014for a period of 3 years in SVRR Govt Hospital, Tirupathi. All adults diagnosed with ischemic cardiomyopathy were included in this study. All patients were evaluated by taking history regarding demographic profile and risk factors like Age, Sex, local area of patient, hypertension, diabetes, obesity, and addictions. Routine blood investigations and ECG, ECHO were done in all patients.

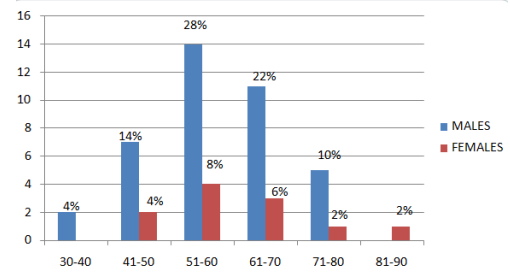
RESULTS:

A total of 50 patients were observed over a period of three years from of which 39 (78%) patients were males and 11 (22%) patietns were females as shown in table1.

TABLE.1: Gender wise distribution of patients

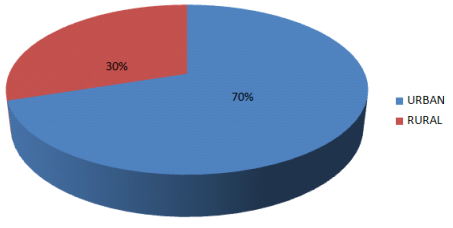
Gender	Number of patients	Percentage (%)
Male	39	78
Female	11	22

FIGURE: 1



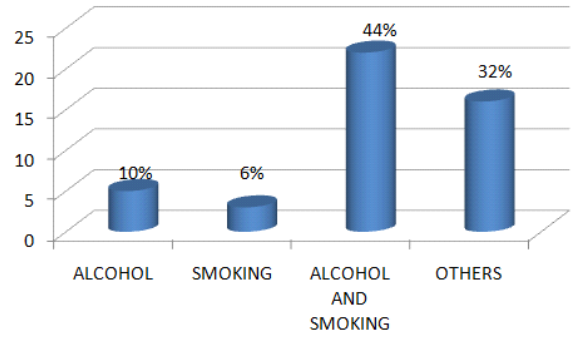
Out of 50 patients, urban population was about 70% (35) and rural population was about 30% (15) as shown in figure 2.

FIGURE: 2
Distribution of patients on the basis of geographical location



Of the 50 patients, 44% (22) were having both alcohol and smoking abuse, 10% have only alcohol abuse and 6% have only smoking abuse, rest of 32% patients have no substance abuse but presented with ischemic cardiomyopathy due to other causes as shown in figure 3

FIGURE: 3
Influence of substance abuse in patients with ischemic



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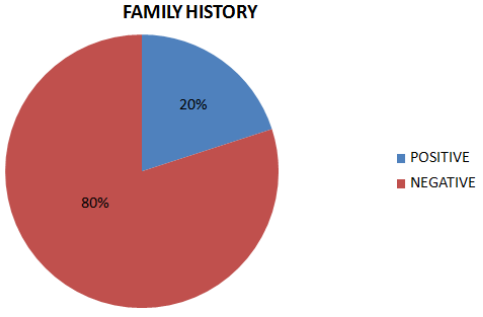
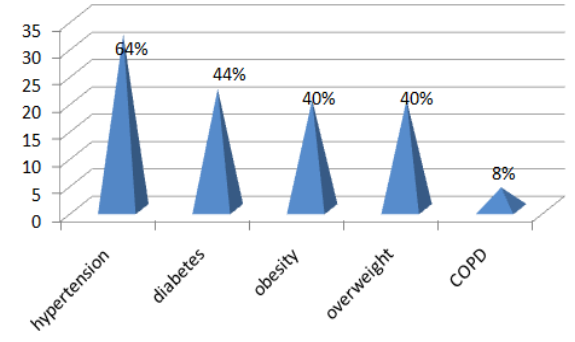
Out of 50 patients 80% (40) have negative family history of ischemic cardiomyopathy and 20% (10) have a positive family history as shown in figure 4

FIGURE:4



Of 50 patients, (32) 64% were having hypertension, (22) 44% were having diabetes, 40% (20) were obese, 40% (20) were overweight, 8% (4) were suffering with COPD as shown in figure 5.

FIGURE: 5
Frequency distribution of patients with systemic illnesses



The occurrence of various electrocardiogram changes like myocardial wall frequency, chamber enlargement, conduction blocks and dysrhythmias in patients was shown in table 2

TABLE: 2 Analysis of electrocardiogram features in patients with ischemic cardiomyopathy

Myocardial Wall frequency	Anteroseptal	Extensive Anterior	Inferior wall	Anterior and inferior wall	RV infarct	True posterior wall
No of patients (%)	**3 (6%)**	**27 (54%)**	**15 (30%)**	**20 (4%)**	**1 (2%)**	**4 (8%)**
Chamber enlargement	LAE	LVH	LAE+ LVH	RAE	RVH	RAE+ RVH
No of Patients (%)	**24 (48)**	**25 (50)**	**10 (20)**	**7 (14)**	**10 (20)**	**-**
Conduction Blocks	LBBB	RBBB	LAFB	LPFB	1st degree heart block	2nd/3rd Degree heart block
No of patients (%)	**14 (28)**	**4 (8)**	**-**	**-**	**-**	**-**
Dysrhythmias	Atrial Premature Contractions	AF	JUNCTIONAL RHYTHM	SVT	VENT. BIGEMINI	VPC
No of patients (%)	**-**	**2 (4)**	**3 (6)**	**-**	**1(2)**	**7(14)**

The occurrence of various echocardiographic changes like regional wall motion abnormality, functional abnormalities (systolic dysfunction, diastolic dysfunction etc.,), possible mechanical defect in 2d echo (MR, TR etc.) and chamber enlargement in patients was shown in table 3.

TABLE: 3 Analysis of echocardiogram features in patients with ischemic cardiomyopathy

Regional wall motion abnormality	Akinesia	Hypokinesia	Dyskinesia	Hyperkinesia	Combined lesions
No of patients (%)	**2 (4)**	**45 (90)**	**2 (4)**	**-**	**1 (2)**
Functional abnormalities	Systolic dysfunction	Diastolic dysfunction	Combined dysfunction	RV dysfunction	Global dysfunction
No of patients (%)	**15 (30)**	**6 (12)**	**12 (24)**	**1 (2)**	**16 (32)**
Possible mechanical defect in 2d echo	MR	TR	Aneurysm formation	Clot formation	Pericardial effusion
No of patients (%)	**14 (28)**	**8 (16)**	**-**	**2 (4)**	**1 (2)**
Chamber enlargement	LAE	LVH	RAE	RVH	No enlargement
No of patients (%)	**10(20%)**	**21(42%)**	**2 (4)**	**2 (4)**	**15 (30)**

DISCUSSION:

Ischemic cardiomyopathy is sometimes applied to describe diffuse dysfunction attributed to multivessel coronary artery disease[1]. Risk factors of coronary artery disease include Elevated cholesterol levels, hypertension, smoking, obesity, low HDL (high density lipoproteins) cholesterol levels, DM(diabetes mellitus), and lack of physical activity are important risk factors for CHD(coronary heart disease) in both men and women. Total triglyceride levels are an independent risk factor for CHD in women but not in men[1].

In present study Ischemic cardiomyopathy started as early as 30 years and majority of the patients are in the agegroup of 51-60 years. Observed data in present study showed the incidence of ischemic cardiomyopathy are more in urban70%(35) followed by rural30% (15). The reasonable explanation of this finding could be ascertained. Type A individuals (aggressive, impatient, competitive) are known to have CAHD(coronary artery heart disease); andsubstantial number of type A individuals prevalence in the urban shall be the explanation or the incidence could be co-incidental rather casual.

Jain *et al*. have shown that a family history of premature CAD in first-degree relatives is associated with development of CAD.[4]Gambhir *et al*. have further demonstrated that low-molecular-weight isoforms of lipoprotein (a) were prevalent in Indian subjects with a positive family history of premature CAD[5]. Interleukin-6 gene polymorphisms have also been described to be important genetic factors in premature CAD and in the regulation of key atherogenic markers in Asian Indian families[6]. The family history not only indicates the genetic predisposition to disease, but may also represent the sum total of the interaction of the individual with environment, expressed in the several ways, including diabetes and thrombotic disorders.

James et al have shown that 57%of study population had family history of coronary artery disease[7]. Contrary to the observation made about the familial inheritance of coronary artery disease, in present study negative family history out number positive family history.

Smoking appears to be a major risk factor for CAHD even with-out significant coronary narrowing[8]. Consumption of alcohol regularly in cardiac disease may predispose them to transient and chronic form of left ventricular dysfunction observed as decrease EF(ejection fraction), increase EDV (end diastolic volume) and cause left ventricular failure[9].

James et al has shown only 24% were cigarette smokers in his study[7]. In present study 44% (22) were having both alcohol and smoking abuse, 10% have only alcohol abuse and 6% have only smoking abuse, rest of 32% patients have no substance abuse but presented with ischemic cardiomyopathy.

James et al has shown risk factors like impaired glucose tolerance in 79%, hypertension in 39%,increased BMI in 55% of females and 16% of males[7].In our study of 50 patients,44% had diabetes,64% had hypertension,40% had obesity,40% overweight.

According to James et al Hypertension (39%) and cigarette smoking (24%) were not seen to be a major risk factors for coronary artery disease as only a minority of the study population had hypertension or gives a history of cigarette smoking[7]. In contrast in present study cigarette smoking,alcohol abuse, hypertension and obesity were major risk factors for coronary heart disease.Diabetes is not seen as a major risk factor for CAD as only 44% of population were having diabetes in the present study.

CONCLUSIONS: Ischemic cardiomyopathy is more commonly seen in males. Smoking and alcohol consumption has linear relation ship with ischemic cardiomyopathy.Hypertensive patients are more prone for ischemic cardiomyopathy than diabetic patients.Routine screening and early detection and treatment of hypertension and diabetes,obesity decreases the morbidity and mortality from patients going into ischemic cardiomyopathy.

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