

EVALUATION OF CLINICAL PROFILE AND ASSESSMENT OF RISK FACTORS AND OUTCOME AMONG PATIENTS OF ISCHEMIC HEART DISEASE.

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ABSTRACT

Background: The prevalence of communicable diseases shows decline in the 20th century and as a result there was increase in life expectancy and a major shift from the communicable to non-communicable diseases throughout the world. During this epidemic transition, cardiovascular diseases (CVD) reported as the most common cause of morbidity and mortality worldwide. **Material & Methods:** The present cross-sectional prospective study was conducted at department of general medicine of our tertiary care hospital. 60 Patients who were diagnosed for unstable angina on basis of classical sign of angina chest pain or with ECG finding showing ST segment depression in consecutive 2 leads and with a normal serum trop -T levels were included in the study. **Results:** In present study, out of 41 participants who had post prandial hypertriglyceridemia,34 had diabetes mellitus and 07 had normal blood sugar levels. out of 19 participants who had post prandial hypertriglyceridemia, 06 had diabetes mellitus and 13 had normal blood sugar levels. There was significant association found between diabetes mellitus and high PP4TG level (p value 0.001). Out of 41 participants who had post prandial hypertriglyceridemia,28 had low fasting HDL levels and 13 had normal fasting HDL levels. out of 19 participants who had post prandial hypertriglyceridemia, 07 had low fasting HDL levels and 12 had normal fasting HDL levels. There was significant association found between HDL Level and high PP4TG level (p value 0.022). **Conclusion:** In present study smoking, hypertension, diabetes mellitus and dyslipidemia are important cardiovascular risk factors. Postprandial hypertriglyceridemia was found to be strongly associated with Diabetes Mellitus. Postprandial hypertriglyceridemia despite normal fasting triglyceride may be independent risk factor for atherosclerosis subsequently ischemic heart disease.

Key words: Cardiovascular risk factors, Diabetes Mellitus, Dyslipidemia, Ischemic heart disease

INTRODUCTION:

The prevalence of communicable diseases shows decline in the 20th century and as a result there was increase in life expectancy and a major shift from the communicable to non-communicable diseases throughout the world. During this epidemic transition, cardiovascular diseases (CVD) reported as the most common cause of morbidity and mortality worldwide which was responsible for approximately<10% deaths worldwide only a century ago but in current scenario

accounting for approximately 40% of global deaths. (1) India contributes one-sixth of the global population, is reporting an exponential increase in prevalence heart diseases. WHO in 2010 had published that 60% of world's total cardiac patients were living in India. (2) However, there was not much data published on the prevalence of myocardial infarction (MI) in studies conducted in India among elderly age collection, but population studies had reported that approximately 15-53% hospital admission among elders were for MI.(3)

Coronary heart disease (CHD) in current scenarios is the leading cause of Mortality and morbidity among men and in middle aged women in both developed and developing nations. In India population of women constitute approximately 48% of the whole population; however due to under diagnosis, undertreatment and under researches the data for CHD among women is inadequate and therefore CHD remains an alarming health problem of women in India. (1) Along with above stated facts CHD in women shows atypical presentation, before onset of menopause the incidence of CHD is lower and coronary manifestations reported usually 10 years later as compared to men and incidence of myocardial infarction (MI) reported 20 years later approximately as compared to men.

Several risk factors would contribute to the reported higher incidence of ischemic heart diseases, the prevalence rate of hyperlipidemia, hypertension, diabetes and smoking and the duration of exposure of these risk factors along with age and sex of the patient. There is not much data and studies are available for ischemic heart disease for the geographical area of southern Rajasthan. Hence present study was conducted to evaluate the clinical profile of ischemic heart diseases and to assess the risk factors present among study participants and to know the outcome of the disease in our study area.

MATERIALS & METHODS

The present cross-sectional prospective study was conducted at department of general medicine of our tertiary care hospital. The study duration was of two months from May 2018 to June 2018. A sample size of 60 was calculated at 95% confidence interval at 10% acceptable margin of error by epi info software version 7.2. Patients who were diagnosed for unstable angina on basis of classical sign of angina chest pain or with ECG finding showing ST segment depression in consecutive 2 leads and with a normal serum troponin-T levels. We also set an inclusion criteria of fasting serum cholesterol level less than 180 mg%. Clearance from Institutional Ethics Committee was taken before start of study. Written informed consent was taken from each study participant. Clinical examination, mainly cardiovascular system and detailed history

including family and dilatory history were recorded and routine blood investigations and fasting lipid profile were done. Patients who were on lipid lowering drugs, cases of Prinzmetal angina or previously diagnosed case of IHD, case of rheumatic heart disease, case of hemoglobinopathies, case of chronic liver disease and renal diseases, had hypercoagulable states or hyperhomocysteinemia and patients on hormone therapy or on pioglitazone for last month were excluded from the study.

Patients were not allowed to take high fat diet i.e. ghee, butter, cheese, chocolate, ice cream etc. The cut off values were set according to AHA guidelines i.e. for HDL cholesterol <40 mg%, for fasting serum triglyceride >150 mg%, for LDL >130 mg% and postprandial triglyceride value is >160 mg% were considered significant. Data were entered in the MS office 2010 spread sheet and Epi Info v7. Data analysis was carried out using SPSS v22. Qualitative data was expressed as percentage (%) and Pearson's chi square test was used to find out statistical differences between the study groups. If the expected cell count was < 5 in more than 20% of the cells then Fisher's exact test was used. All tests were done at alpha (level significance) of 5%; means a significant association present if p value was less than 0.05.

RESULTS

In present study, out of 60 patients 38 were males and 22 were females, so male predominance was seen. Majority of patients i.e. 26 were in 41-50 age group followed by 15 in 30-40 age group. While 13 and 06 patients were in 51-60 and more than 60 years age group respectively. The mean age of presentation was 46.8±6.4 years.(Table 1)

In the present study serum triglyceride level more than 160 mg% after four hours of lunch is marked as post prandial hypertriglyceridemia. 41 patients (68.33%) reported to have post prandial hypertriglyceridemia. Out of them 27 were males and 14 were females. Out of the total 35 patients had low fasting HDL level i.e. less than 40 mg%, including 23 male and 12 females. Rest 25 patients had high fasting HDL level. Out of the total study participants 40 were found positive for diabetes mellitus which

includes 24 males and 16 females. Rest 20 patients had normal blood sugar levels. Out of the total study participants 37 had hypertension which includes 24 males and 13 females. Rest 23 patients were normotensives. Out of the total study participants 32 were smokers which includes 30 males and 02 females. Rest 28 patients were nonsmokers. (Table 2)

Table 1: Distribution of study participants according to age and gender

Age (years)	Male	Female	Total
30-40	10	5	15
41-50	14	12	26
51-60	9	4	13
>60	5	1	6
Total	38	22	60

Table 2: Distribution of study participants according to various study parameters

Parameters	Male	Female	Total	
Pp4tg	Normal	11	08	19
	High	27	14	41
HDL	Low	23	12	35
	Normal	15	10	25
DM	Present	24	16	40
	Absent	14	06	20
Hypertension	Present	24	13	37
	Absent	14	09	23
Smoking	Present	30	02	32
	Absent	08	20	28

In present study, out of 41 participants who had post prandial hypertriglyceridemia, 34 had diabetes mellitus and 07 had normal blood sugar levels. out of 19 participants who had post prandial hypertriglyceridemia, 06 had diabetes mellitus and 13 had normal blood sugar levels. There was significant association found between diabetes mellitus and high PP4TG level (p value 0.001). Out of 41 participants who had post prandial hypertriglyceridemia, 28 had low fasting HDL levels and 13 had normal fasting HDL levels. out of 19 participants who had post prandial hypertriglyceridemia, 07 had low fasting

HDL levels and 12 had normal fasting HDL levels. There was significant association found between HDL Level and high PP4TG level (p value 0.022).(Table 3)

Table3: Association of PP4TG with diabetes mellitus and fasting HDL levels.

		Normal PP4TG	High PP4TG	P value
Diabetes	Present	06	34	0.001
	Absent	13	07	
HDL	Low	7	28	0.022
	Normal	12	13	

DISCUSSION

In present study, 69% patients were aged less than 55 years while 75% female and 62% male were aged less than 55 years with mean age of 51.2±6.4 these finding shows that middle aged patients are more likely to be selected for study like our study (p value <0.05). In Hiroyasu et al study, 55% were male and 45% were females with an average of 55.1±6.3 years which correlates well with our study.10 Similar finding seen in Cohn et al study these findings suggest that all persons having ischemic heart disease they pass from impaired post prandial lipid metabolism and then they have fasting dyslipidemia.11 In present study, out of 60 patients (68%) showed serum triglyceride level >160 mg% after four hours of meal. Out of 60 patients, 38 out of 60 males (63.3%) and 30 out of 40 females (67.5%) showed postprandial hypertriglyceridemia. the mean fasting triglyceride and PP4TG was 136±19 mg% and 182±26 mg% respectively (p value<0.05). Furthermore, these data suggest that ischemic heart disease patients might have impaired postprandial lipid metabolism despite having normal fasting serum triglyceride levels. The association between postprandial hypertriglyceridemia and atherosclerosis should be proved by direct and indirect methods.

Present study finding suggests that there is association between coronary heart disease and PP4TG levels being relative risk of 1.77. In Hiroyasu et al study, 58% male and 64% female patients showed post prandial hypertriglyceridemia (p value<0.05).10 In Nordestgaard et al study showed that non-fasting triglyceride level independently predicts myocardial infarction, ischemic heart disease and death.12 Both studies correlates with present study finding. in our study, no relation found between HDL Level and high

PP4TG level (p value 0.34). In present study, 68% Patients were Diabetic and 68% patients had post prandial hypertriglyceridemia. Amongst 68% patients having postprandial hypertriglyceridemia, 57% were diabetic and only 11 were non-diabetic. In remaining 32 patients, who had normal PP4TG level 11 were diabetic and 21 were nondiabetic.

There was strong association found between diabetes mellitus and high PP4TG levels. The calculated odds ratio is 10.1 similar finding was found in Axelton et al and Teno S et al study.^{13,14} In Malte et al study on post prandial hypertriglyceridemia and type 2 diabetes mellitus showed postprandial lipid intolerance despite having normal fasting triglyceride level and increased risk of macroangiopathy. In Teno S et al study also showed that postprandial hypertriglyceridemia despite normal fasting triglyceride may be an independent risk factor for early atherosclerosis in type 2 diabetes.⁽¹⁴⁾

In present study, 62% patients were hypertensive in which out of which 39 (65%) and 23 (57.5%) females were found to be hypertensive. Similar results found in Mannie V et al study which shows that early lipid lowering therapy and hypertension control decreases the incidence of coronary heart disease.⁽¹⁵⁾

In present study, 81.6% were male smokers while only 10% females were smokers. Cigarette smoking found to be major risk factor in the study. Smokers have more chances of myocardial infarction and angina even at a much younger age than do non smokers¹⁶. People who smoke are up to four times likely to die from coronary heart disease than nonsmokers.¹⁷

Hospital stay outcome was good. 81.2% patients remained free of cardiac events during 30 days follow up while only 13.7% were presented with recurrent ischemia. Similar results found in Dionoso et al study.¹⁸ 76.4% patients remained free of cardiac events and 11.7% had readmission for unstable angina. No mortality occurred during entire study period.

CONCLUSION

Ischemic heart disease is common in middle age patients with predominantly in males. Smoking, hypertension, diabetes mellitus and dyslipidemia are important cardiovascular risk factors for ischemic heart disease. Furthermore, in the present study, authors found statistically significance correlation

between postprandial hypertriglyceridemia and incidence of ischemic heart disease even in patients having normal fasting triglyceride levels. These observations are in contrast that fasting triglyceridemia is major predictor of atherosclerosis suggesting that patients having higher postprandial triglyceride levels have higher risk of ischemic heart disease. There is statistically significant correlation found between postprandial hypertriglyceridemia and diabetes mellitus. So postprandial hypertriglyceridemia may be an independent risk factor for atherosclerosis in ischemic heart disease patients. So, evaluation of post prandial triglyceride level is important during clinical assessment of ischemic heart disease patients. Furthermore, early diagnosis and prompt treatment of cardiovascular risk factors can reduce mortality and morbidity related to ischemic heart disease. Limitations of study were small sample size, precise time interval for blood sample collection and dietary fat intake during meal which would have helped in analysis.

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