



ORIGINAL RESEARCH PAPER

Cardiology

PREVALENCE OF DYSLIPIDEMIA WITH CLASSIC TRIAD IN MEDICAL COMMUNITY

KEY WORDS: Dyslipidemia, cholesterol, medical community

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ABSTRACT

OBJECTIVES– Dyslipidemia conveys significant risk for future atherothrombotic cardiovascular events and has important correlation with the working environment. So, we aimed to see prevalence of dyslipidemia in medical community of Bikaner, India.
MATERIAL AND METHODS – It was a cross sectional study. We recruited 390 (180 doctors and 210 paramedical staff) medical professionals. Detailed laboratory examination was done. Data was collected in a performa having questionnaires about physical activity, job stress, sleeping hours, working hours, alcoholism and smoking habits. Correlation with multistep regression analysis and coefficient of contingency were derived from the results.
RESULTS- Prevalence of dyslipidemia with at least one deranged parameter was 78.7% while classic triad was found in 58.7% cases. Prevalence of increased total cholesterol, LDL cholesterol, triglycerides was in 42.31%,43.33% and 51.28%.While deranged HDL level was found in 46.92% of the participants.
CONCLUSION- Prevalence of dyslipidemia is very high in medical community.

INTRODUCTION

Cardiovascular disease (CVD) is the leading cause of death worldwide, and mortality due to CVD is higher in low- and middle-income countries^{1,2}. In India, there has been an alarming increase in the prevalence of CVD over the past two decades so much so that accounts for 24% of all deaths among adults aged 25–69 years³. Asian Indians have been found to develop CVD at a younger age than other populations⁴. The likely causes for the increase in the CVD rates include lifestyle changes associated with urbanization and the epidemiologic and nutritional transitions that accompany economic development⁵. Dyslipidemia has been closely linked to the patho-physiology of CVD and is a key independent modifiable risk factor for cardiovascular disease^{6,7}. While Asian Indians are known to have a unique pattern of dyslipidemia with lower HDL cholesterol, increased triglyceride levels and higher proportion of small dense LDL cholesterol.

Little information exists on prevalence of dyslipidemia in India and especially in professional workers. The working population represents a large proportion of the general population. The employees spend most of the time of their life in their working place. The working authorities are directly affected by working efficiency and the individual nation's development is affected indirectly. Hospitals are an ideal environment to collect and disseminate information on quality of life and cardiovascular risk factors. Hospital workers are influenced by their work environment and also have a role as educator. In health care services the value of dyslipidemia derives largely from its potential to reduce the risk of cardiovascular disease in the general population by treating the disease. So we planned to study the prevalence of dyslipidemia in medical professionals of Bikaner, Rajasthan.

MATERIAL AND METHODS

This was a cross-sectional epidemiological study investigating prevalence of dyslipidemia in medical community of Bikaner. 390 Participants (180 doctors and 210 paramedical staff members). All participants were more than 30 years of age. The data were collected on a specially designed proforma having multiple questionnaires describing baseline demographic profile, personal habits and physical exercise (IPAQ protocol)⁸, work load and sleep pattern. Participants underwent detailed physical and laboratory testing. Laboratory measurements were done after at least 8 hours of fasting.

Dyslipidemia was defined according to the third report of National Cholesterol Education Program Adult Treatment Panel (NCEP ATP

III) criteria⁹ with the following cut off values: hypercholesterolemia-serum TC level ≥ 200 mg/dl; hypertriglyceridemia–serum TG level ≥ 150 mg/dl; low HDL-C level ≤ 40 mg/dl for both men and women and high LDL-C level ≥ 100 mg/dl. Isolated dyslipidemia was defined with at least one deranged parameter while the term triad was used for combined deranged value of LDL, HDL and TGs.

STATISTICAL ANALYSIS

Analyses were completed using SUDANN (version 8.0) to take into account sample weights and design effects..

OBSERVATIONS:

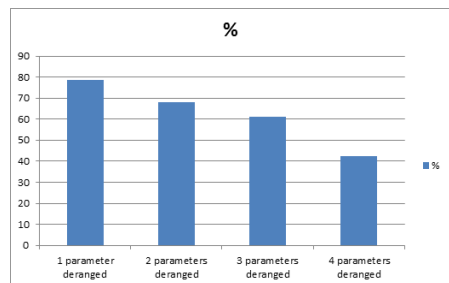
Demographic profile regarding lipid profile of the study population is being depicted in table 1. Prevalence regarding abnormal values of lipid parameters has been depicted in table 2. Prevalence of dyslipidemia with at least one deranged parameter was found in 307 cases (78.7%). Two parameters of lipid profile were deranged in 266 (68.2%), three parameters in 239 (61.2%) cases while all parameters were deranged in 42.31% of cases (graph 1). Classic triad was diagnosed in 229 cases (58.7%).

Table 1. Demographic profile regarding lipid profile of the study population

Variables	Staff (mean±SD)	Doctors (mean±SD)
Age	42.4±8.3 (41.3 - 43.5)	45.7 ±8.7 (44.4 - 46.9)
Waist	90.8 ± 11.8 (89.2 – 92.4)	92.4 ±12.6 (90.6 -94.3)
SBP	128.3±8.8 (127.1 – 129.4)	130.6±9.8 (129.2 – 132.1)
DBP	82.3±4.7 (81.7 – 83.02)	83.5±4.7 (82.8 – 84.2)
FBS	100.3±35.6 (95.5 -105.2)	103.1±40.2 (97.2 – 109.06)
TG	163.8±52.2 (156.8 – 170.9)	178.5±64.05 (169.2 -187.9)
HDL	42.8±8.9 (41.6 – 44.06)	42.7±7.6 (41.6 – 43.8)
TC	195.7±46.6 (189.4 – 202.05)	204.4±83.09 (192.3 – 216.6)
LDL	103.07±39.1 (97.7 – 108.3)	101.2±40.1 (95.3 – 107.1)

Table 2. Prevalence of abnormal lipid profile in medical community

Profession	Total cholesterol (≥200 mg/dl)		HDL cholesterol (<40 mg/dl)		LDL cholesterol (>100 mg/dl)		Triglyceride (>150 mg/dl)	
	n	%	n	%	N	%	N	%
Doctor(n=180)	84	46.67	83	46.11	82	44.56	100	55.56
Paramedical staff(n=210)	81	38.57	100	47.62	87	41.43	100	47.62
Total (N=390)	165	42.31	183	46.92	169	43.33	200	51.28



Graph 1 . Illustration of isolated and combined deranged lipid parameters

DISCUSSION

The aim of the present study was to focus on the prevalence of dyslipidemia in medical community.

In our study, the overall prevalence of dyslipidemia was more common in doctors versus paramedical staff. The prevalence of dyslipidemia was much more than the general population. Effect of differences in life and behavior such as physical inactivity, job stress, work load, altered sleep pattern, more alcoholic consumption etc. in the general population are the major determining factors

Triglyceride value was deranged in 51.28%. That favors the other general population studies in our country. Triglyceride and HDL are the most common deranged lipids in our country, also known as Indian pattern of dyslipidemia. Karnodi et al.¹⁰ found high triglyceride levels in 28.4%. Garrido et al.¹¹ also found less derangement in triglyceride in comparison to our study. This can be explained by characteristic Indian pattern of dyslipidemia .

The prevalence of abnormal HDL profile required for dyslipidemia diagnosis was deranged in 46.92%. Konradi et al.¹⁰ low high-density lipoprotein cholesterol (HDL-C) levels in 23.9% while Garrido et al.¹¹ found deranged lipid profile in 80% of cases, that is very high than our and Konradi et al study. Prevalence of increased total cholesterol and deranged LDL cholesterol was in 42.31% and 43.33% respectively.

According to SS Lyengar et al¹² the prevalence of prevalence of dyslipidemia in India with at least one deranged parameter is 79% that is similar to our results. There is considerable high prevalence of combined dyslipidemia, consisting of abnormal values of LDL, TG and HDL levels in our study (58.7%) but it co-insides the dictum of classic triad that has been described for Asian population. The common pool of these three parameters may somehow responsible for early age coronary artery disease in Asians. So, these three parameters should be main concern in the various prevention measures for cardiovascular disorders.

In comparison with western population, a relatively lower level of cholesterol appears to predispose Indians to coronary artery disease.¹³ Also in a Chennai based hospital study, it was shown that around 75% of patients with myocardial infarction had TC levels <200 mg/dl indicating that the threshold for the TC levels above which it poses a risk for coronary artery disease is low in

Indians.¹⁴ The contributing factor for hypertriglyceridemia in our population could be our diet rich in carbohydrates.¹⁵ High TG levels have been associated with increased levels of small dense LDL which are considered to be highly atherogenic.¹⁶ Enas etal. found that only 4% 5% Indians have optimal HDL levels.¹⁷ Low HDL-C levels are stronger predictor of occurrence and reoccurrence of MI and stroke and are also associated with premature and severe CAD.¹⁸ Oxidative modification of LDL-C is a key process of atherosclerosis and elevated LDL-C has been recognized as primary risk factor for CAD by NCEP – ATPIII.¹⁹

There were several limitations of our study. The sample size in our study would have large. In the coming future, a large prospective study is further required to describe the medical occupation benefits versus hazards on individual's personal and social life. There is emerging need to modify the lifestyle, behavior and personal habits to save the health of medical professionals. Medical professionals are in sustained exposure to stress or other daily life hampering things; indirectly affects whole the humanity. The present decreased manpower in medical profession to general population ratio, long term stressful study pattern without any more fruitful or bright future in comparison to other sectors, irrelevant responsibilities offered to a doctor other than to treat the patients etc. may be responsible for this coming epidemic in our medical community.

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