Obesity and Lipid Profile Status amongst the Healthy Physicians Working at a Tertiary Hospital in Bangladesh

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Abstract

Background: Obesityis closely associated with dyslipidemia and is now a pandemic of modern world. Both dyslipidemia and obesity are most important cause for the development of major noncommunicable diseases. This study was aimed to assess the pattern of obesity and lipid profile statusamong physicians working at a tertiary levelHospital in Bangladesh.

Materials and methods: This descriptive cross-sectional study was doneamong 107 physicians of different departments of Chittagong Medical College Hospital in 2016. Demographic and anthropometric data were collected using a structured case record form. After taking informed written consent, relevant information and physical examination findings were recorded and fasting blood samples were collected to determine the Lipid profile [Total Cholesterol (TC), Triglyceride (TG), Low Density Lipoprotein Cholesterol (LDL-C) and High-Density Lipoprotein Cholesterol (HDL-C)] of the participant and then results was classified according to National Cholesterol Education Programme Adult Treatment Panel III criteria (NCEP-ATP III).

Results: In this study mean age was 32.3±4.5 years with 67.3% in the age group of 31-40 years, and 71% were male. the overall proportion of overweight, obesity, and dyslipidemia were 54.8%, 19.4%, and 81.3%, respectively. Proportion of male physicians with generalized obesity was significantly higher than female (42.1% versus 19.4%) and reverse trend was observed in the distribution of abdominal obesity, which was higher in female than male (87.1% versus 60.5%). In this lipid profile study most significant abnormality found was low HDL-C (72.9%) followed by elevated TG (57.9%). Respectively, 54.8% and 3% of the female and male physicians have normal lipid profile. In both gender, TC, and TG were positively correlated with BMI and WC.

Conclusion: As the burden of obesity and dyslipidemia are high among young physicians, policymakers should consider comprehensive programs for the primary prevention of CVD among young physicians working at the tertiary level hospital in Bangladesh.

Key words: Dyslipidemia; Lipid Profile; Obesity; Physician.

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Introduction

World Health Organization stated that overweight and obesity are “abnormal or excessive fat accumulation that responsible for major health risk.” Prevalence of increasing trendof obesity were first observed in high-income countries in the late 1980s. From then, significant rates of overweight and obesity observed in low- and middle-income countries,specifically in urban and obesity is now suggested as a pandemic.[1] Bangladesh is not an exception, and an increasing trend of overweight and obesity among Bangladeshi children, adolescents and adults is found in a recent study.[2]

Among obese people insulin resistance is the most common metabolic disorder and it plays an important role for development of dyslipidemia. At present the form of dyslipidemia due to insulin resistance and obesity is acknowledged as "metabolic dyslipidemia".[3] Dyslipidemia is defined as abnormality in any one or more of four lipids fractions that means elevation of TC, TG, LDL-C or low HDL-C level.[4] Dyslipidemia is intimately associatedwith obesity and the development of type 2 diabetes mellitus, Cardiovascular Disease (CVD) and different types

of cancer, that leadthe most common cause of death worldwide.[5,6] So this is very important to detect dyslipidemia at an early stage and start treatment as early as possible. Due to lack of apparent early signs dyslipidemia tends to be overlooked.[7]

Though a handful of studies were available regarding obesity and dyslipidemia in Bangladesh, very little information regarding the same was available from working physicians.[2,8-11] It is noticed that studies in different countries, both are still significant public health problems including younger physicians.[12] Physicians are very essential for influencing patients to modify their lifestyles and CVD risk factors, so theirknowledge and attitude regarding lifestyle changes are usually expected to be high.

In this context, this study aimed to identify the burden of obesity and dyslipidemia among the healthy physicians working at Chittagong Medical College Hospital.

Materials and methods

This was a cross-sectionalstudy and all data were collected from the working physicians of Chittagong Medical College Hospital (CMCH) Bangladesh from January 2016 to June 2016 after taking permission from Ethical Review Committee of Chittagong Medical College.

After taking consent total 107 physician working in CMCH were included for study. Apparently healthy physicians both male and female were included in the study. Physicians suffering from known chronic diseases, receiving anti-lipid drugs were not included in this study.

Anthropometric measurements such as height, weight, and Waist Circumference (WC) by using standard procedures were taken from physicians. Fasting blood samples were taken for estimation of TC, TG, LDL-C, and HDL-C. We determined the overweight and obesity using the Asian BMI cut-offs for underweight (BMI <18.5 kg/m^2), overweight (BMI 23 to <27.5 kg/m^2) and obesity (BMI ≥ 27.5 kg/m^2).[13] Dyslipidemia was considered if the participants were found to have one or more of the following measurements: TC ≥ 200 mg/dl, TG ≥ 150 mg/dl, HDL-C ≤40 mg/dl andLDL-C 130 mg/dl.[14]

Data were analyzed by SPSS version-23. Categorical variables were expressed as frequency and percentages and compared between male and female physicians by Chi -square test.Correlation between continuous variables were reported as Pearson correlation coefficient (r). p value < 0.05 was considered statistical significance.

Results

Overall, mean age was 32.3±4.5 years with 67.3% physiciansin between of 31-40 years. Out of 107 physicians, there were 76 male and 31 female physicians (Table I).

Table I Demographic characteristics of the participants (n=107)

Age (Years)	Male	Female	Total
≤30	19 (25.0)	16 (51.6)	35 (32.7)
31-40	57 (75.0)	15 (48.4)	72 (67.3)
Mean ±SD	32.8±4.2	31.0±5.2	32.3±4.5
Total	76 (71.0)	31 (29.0)	107 (100.0)

Proportion of male physicians with generalized obesity was significantly higher than female and reverse trend was observed in the distribution of abdominal obesity, which was higher in female than male (87.1% versus 60.5%) (Table II).

Table II Obesity characteristics of the physicians

Obesity criteria	Total (n=107)	Male (n=76)	Female (n=31)	p value†
Based on BMI				
Normal	13 (12.1)	5 (6.6)	8 (25.8)	0.007
Overweight	56 (52.3)	39 (51.3)	17 (54.8)	
Obese	38 (35.5)	32 (42.1)	6 (19.4)	
Based on WC				
Normal	34 (31.8)	30 (39.5)	4 (12.9)	0.006
Abdominal obesity*	73 (68.2)	46 (60.5)	27 (87.1)	

Data were expressed as frequency (Percentage), WC: Waist Circumference, * WC >90 cm in male and >80 cm in female, †Chi-square test.

Overall in this lipid profile study most common abnormality found was low HDL-C (72.9%) followed by elevated TG (57.9%). Prevalence of abnormal lipid profile was significantly higher in male physicians compared to female physicians (Table III).

Table III Lipid profile status of physicians stratified by sex

Lipid profile	Total (n=107)	Male (n=76)	Female (n=31)	p value†
Elevated total cholesterol	39 (36.4)	34 (44.7)	5 (16.1)	0.005
Elevated triglyceride	62 (57.9)	55 (72.4)	7 (22.6)	<0.001
Elevated LDL-C	21 (19.6)	17 (22.4)	4 (12.9)	0.263
Low HDL-C	78 (72.9)	71 (93.4)	7 (22.6)	<0.001

Data were expressed as frequency (Percentage), †Chi-square test.

Normal lipid profile was found in 20 (18.7%) participating physicians thus indicating the prevalence of dyslipidemia as 81.3% in out of 107 studied physicians. More than half of the female physicians (54.8%) have normal lipid profile in contrast to only 3% male physicians (Figure 1).

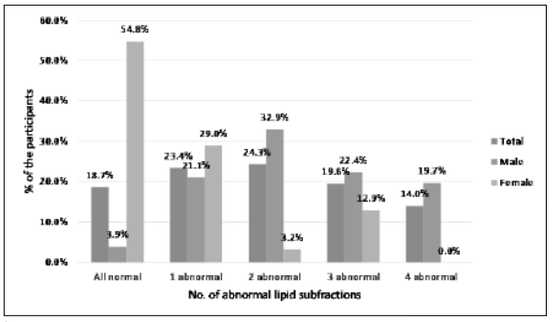

Figure 1 Pattern of lipid abnormality stratified by sex (n=107)

In both gender, TC and TG werepositively correlated with BMI and WC. Positive correlation of LDL-C with BMI and WC were observed inly in male physicians (Table IV).

Table IV Correlation coefficient between general and abdominal obesity and lipid levels for male and female physicians

Lipids	Body mass index		Waist circumference	
	r	p value	r	p value
Male				
Total cholesterol	0.305	0.001	0.312	<0.001
Triglyceride	0.291	0.005	0.254	0.004
LDL-cholesterol	0.201	0.021	0.312	0.004
HDL-cholesterol	-0.176	0.178	-0.003	0.987
Female				
Total cholesterol	0.217	0.004	0.218	0.019
Triglyceride	0.208	0.014	0.201	0.045
LDL-cholesterol	0.194	0.061	0.112	0.119
HDL-cholesterol	-0.071	0.654	-0.013	0.887

r=Correlation coefficient.

Discussion

Previously obesity and dyslipidemia was not significantly studied among young physicians and so this study was done to detect obesity and lipid profile level in healthy physicians. Result of this study found that the proportion of dyslipidemia, overweight and obesity were high among the physicians, 81.3%, 54.8% and 19.4% respectively.

Although we assume physicians are healthier and conscious about healthylife style than general population, but resultsof present study were surprising and alarming, because this study stated high frequency (93.4% and 74.2%) of excess body weight (BMI ≥23 kg/ m²) among male and female physicians. This study resultwas also consistent with previous studies done in Pakistan and Saudi Arabia.[15,16]

Physicians in current study had higher percentage of high TC, TG and LDL-C level and low HDL-C. Proportion of male physicians with abnormal lipid profile was significantly higher compared to female physicians in the current study. In another study significant dyslipidemia foundin younger adults aged 30–39 years compared to other age groups.[17] Present study result agreed with these findings. There may be multiple factors behind this. The fascination for following a western lifestyle could responsible for dyslipidemia.[18,19] Probable cause may include rapid urbanization with less physical activities, change in dietary habit and also increasing access to modern amenities leading to sedentary lifestyles, specially in younger adults.

In this current study resultsstated a positive correlation of BMI with TC, TG and LDL-C and a negative correlation with HDL-Cwhich also observed in another study even though BMI correlated with cholesterol and LDL-C, but did not correlate with elevated TG and HDL-C.[20,21]

Limitation

There are some limitations in this study. Sample size was relatively small, collected from a public tertiary level hospital . Thus limit its capacity to generalize the results of all physicians. Absence of an age, and sex-matched control group of general population is another limitation. Although there are few limitations, this study was done to explore the burden of obesity in relation to dyslipidemia among the physicians.

Conclusion

This present study revealed a high burden of overweight, obesity and dyslipidemia among young physicians working in a tertiary level hospital in Bangladesh which should be take into concern.

Recommendation

Enhanced awareness of physicians about better lifestyles for themselves and organizational enlightenment activities conducted by medical institutions is desirable. Obesity and dyslipidemia

are components of metabolic syndrome among young physicians. So urgent plan needed to reduce mortality and morbidity associated with these risk factors.

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Contribution of authors

IA-Conception, acquisition of data, drafting & final approval.

MHR-Data analysis, design, critical revision & final approval.

MRC-Acquisition of data, drafting & final approval.

FA-Acquisition of data, drafting & final approval.

ASMRH-Interpretation of data, critical revision & final approval.

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Disclosure
The authors declared no conflicts of interest.

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