PUB: 41/2014

SHORT COMMUNICATION

RISK OF TYPE 2 DIABETES MELLITUS IN MEDICAL STUDENTS

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ABSTRACT

Background:
Obesity is increasing day by day in the young individuals due to changes in their lifestyle. Together with family history of diabetes, it has become a major predictor of type 2 diabetes. This study was done to evaluate the risk of developing diabetes in medical students.

Objectives:
To evaluate the risk of developing diabetes among medical students using Indian Diabetes Risk Score

Methods:
The study included 300 MBBS students. Detailed history was taken which includes information regarding their age, family history of diabetes and exercise. Waist circumference (WC) was measured. Risk of diabetes was calculated using Indian Diabetes Risk Score.

Results:
Out of 300 students, Risk of developing diabetes was high in 18(6%), moderate in 133(44.3%) and low in 149(49.7%) students.

Conclusion:
Risk of diabetes was present in more than 50% of medical students as assessed by Indian Diabetes Risk Score.

Key words: Diabetes Mellitus, medical students, Type 2DM.

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INTRODUCTION:

Obesity is increasing day byday in the young individuals due to changes in their lifestyle. Together with family history of diabetes, it has become a major predictor of type 2 diabetes. Both factors are relatively easy to assess and are widely used for the identification of individuals with undiagnosed diabetes. Obesity particularly abdominal obesity affects hyperglycemia through a decrease in insulin sensitivity. A family history of diabetes is believed to reflect genetic

susceptibility to diabetes and decreases the insulin sensitivity. This may therefore modify the effect of obesity on glucose homeostasis.[1] Nowadays there is a shift in development of diabetes type 2 towards younger age group. Indian Diabetes Risk Score (IDRS) is a simple and effective screening tool to evaluate risk of diabetes in future. It involves four parameters namely age, parental family history of diabetes, WC and physical activity to calculate the score as shown in table 1. A score of > 60 denotes high risk, 30 - 50 moderate and < 30 low risk.[2] In the present study the risk of diabetes in medical students was evaluated using IDRS.

Table 1: Indian Diabetes Risk Score

Particulars	Score
Age (yr):	
< 35 (reference)	0
35-49	20
>50	30
Abdominal obesity:	
Waist <80 cm (female), <90 (male) (reference)	0
Waist > 80-89 cm (female), >90-99 cm (male)	10
Waist >90 cm (female), >100 cm (male)	20
Physical activity:	
Exercise [regular] + strenuous work [reference]	0
Exercise [regular] or strenuous work	20
No exercise and sedentary work	30
Family history	
No family history [reference]	0
Either parent	10
Both parents	20
Minimum score	0
Maximum score	100

OBJECTIVES:

To evaluate the risk of developing diabetes among medical students using Indian Diabetes Risk Score.

METHODS:

The study included 300 MBBS students. Ethical clearance was obtained from Institutional Ethical Committee and informed consent was taken. Any known case of type 2 DM, PCOD, thyroid disorder were excluded from the study. Detailed history was taken about age, family history of diabetes and exercise. Students performing moderate to vigorous physical activity for at least 20 minutes a day regularly or 150 minutes per week were grouped under positive exercising group. [3] Measurement of the WC was taken directly on the body with light clothing midway between the lowest rib and the iliac crest and hip circumference at the level of the greater trochanters with legs close together, after a normal expiration using a non-stretchable measuring tape by average of three measurements nearest to 0.5 cm.[4] The individuals were classified as having high risk (score >60), moderate risk (score 30-50) and low risk (score <30) out of a total score of 100.[5,2]

STATISTICS:

Descriptive analysis was carried out to evaluate the risk of developing diabetes in them and presented categorically in percentage

RESULTS:

Mean age of the study group was 19.3 + 1.4 years. Out of 300 students, 50.7% were females and 49.3% males. The distribution of WC is shown in table 2.

30.6% of the students had parental history of diabetes. 28.6% of them had history of one parent being diabetic and 2% had both parents diabetic. Only 15% of them were exercising regularly and rest 85% were non exercising. Risk

of diabetes was calculated using Indian Diabetes Risk Score (IDRS) as shown in table 3.

Table 2: Distribution of WC among medical students:

		FEMALES (%)		MALES (%)	
WC	Cut off	< 80 cm	>80 cm	< 90 cm	>90 cm
	% of student	59.2%	40.8 %	64.9 %	35.1 %

Table 3: Risk of developing diabetes mellitus in medical students

IDRS	High (>60)	Moderate (30-50)	Low (<30)
Percentage of students	6%	87.3%	9.7%

DISCUSSION:

In this cross sectional study, 300 MBBS students were enrolled. Indian diabetes risk score was used to predict risk of developing diabetes in them. As all the students were less than 35 years of age, all obtained a score of zero for age. Therefore the score was calculated using waist circumference, parental family history and exercise. Based on Asian standards[2], central obesity as predicted by WC was prevalent in 40% of females and 35% of males. Central obesity specially is shown to be an important risk factor for cardio metabolic diseases. Unlike subcutaneous fat, visceral fat is drained by the portal venous system and has a direct connection with the liver, resulting in an influx of free fatty acid availability in the liver. In visceral fat, mobilization of free fatty acids is faster because of higher lipolytic activity in visceral adipocytes, resulting in higher free fatty acids in the systemic circulation where it forms plaque on the artery walls, resulting in high blood pressure and cardiovascular disease. Additionally, an influx of free fatty acid availability in the liver decreases hepatic insulin extraction, resulting in systemic hyperinsulinemia, and inhibits the suppression of glucose production by insulin.[6] Parental history of diabetes was present in around 30% of the students. And 85% of the students were not exercising regularly neither were they performing any strenuous work. The sedentary lifestyle is independent risk factor of diabetes. After computing for IDRS scores it was found that 6% of the subjects were already in the high risk group. Around 87% were in moderate risk group. If steps are not taken to control their obesity, they may land up in high risk group after age of 35 years. Our results are consistent with a similar study done in Pune which showed 4% in high risk group and 76% in moderate risk. [7] Another study done in Mangalore revealed 1/3rd of students at high to moderate risk. [8]

CONCLUSION:

Abdominal obesity was present in more than 50% of the medicos. Around one third of the students had positive family history of diabetes. Also a high percentage (85%) of them was sedentary. The current data shows an increased risk of diabetes in most of them. Family history is a non modifiable factor. Therefore immediate steps should be taken to reduce the obesity by encouraging these students to increase physical activity and diet control.

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