Scholars Journal of Applied Medical Sciences (SJAMS) **ISSN 2320-6691 (Online)**
Sch. J. App. Med. Sci., 2015; 3(6B):2298-2300 **ISSN 2347-954X (Print)**

(An International Publisher for Academic and Scientific Resources)
www.saspublishers.com DOI: 10.36347/sjams.2015.v03i06.027

Research Article

Evaluation of Risk for Type 2 Diabetes Mellitus in Medical Students Using Indian Diabetes Risk Score (IDRS)

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Abstract: Diabetes Mellitus (D.M.) refers to a group of common metabolic disorders that share the phenotype of hyperglycemia. The rising prevalence of type 2 D.M is closely associated with industrialization and socio economic development. 50% of the diabetic patients in India remain unaware of their diabetic status, which increases the risk of development of diabetic complications. We have used IDRS (Table 1) which is simple, safe and inexpensive questionnaire consisting of four simple parameters i.e. age, obesity status, exercise status, and family history of type 2 D.M. It was observed that 4%, 42% and 55% students were in High, Moderate, and Low risk group, respectively, for developing type 2 DM.
Keywords: type 2 diabetes mellitus, 1st degree relatives, Indian diabetes risk score (IDRS).

INTRODUCTION

Diabetes Mellitus (D.M.) refers to a group of common metabolic disorders that share the phenotype of hyperglycemia. The rising prevalence of type 2 D.M is closely associated with industrialization and socio economic development. The recent World Health Organization report suggests that over 19% of the world's diabetic population currently resides in India [1]. This translates to over 35 million diabetic subjects and these numbers are projected to increase to nearly 80 million by 2030. This rising trend predicts a significant health burden due to diabetes in India [2, 3]. Unfortunately more than 50% of the diabetic patients in India remain unaware of their diabetic status, which increases the risk of development of diabetic complications in them [4]. Hence early identification of the risk factors associated with diabetes and appropriate interventions aimed at preventing the onset of diabetes and its complications are urgently required. Previously a disease of the middle-aged and elderly, type 2 diabetes has recently escalated in all age groups and is now being identified in younger age groups, including adolescents and children, especially in high-risk populations. This underscores the need for mass awareness and screening programme to detect diabetes at an early age. We have used IDRS (Table 1) which is simple, safe and inexpensive questionnaire consisting of four simple parameters i.e. age, obesity status, exercise status, and family history of type 2 D.M [5].

Indian Diabetes Risk Score [IDRS]

Particulars	**Score**
Age [years]	
< 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

AIMS AND OBJECTIVE

To evaluate risk for type 2 diabetes mellitus in medical students using Indian diabetes risk score (IDRS)

MATERIALS AND METHODS

The study was a cross sectional study. It was conducted in the Department of General Medicine, PDVVPF's Medical College & Dr. Vikhe Patil Memorial Hospital, Ahmednagar.

- The study Period was 2 months.
- The research protocol was approved by the college ethical committee and informed consent was obtained from each subject prior to inclusion in the study.
- 222 subjects were included in the study.
- The purpose of the study was explained to all the volunteers and a written consent was obtained.
- All subjects were assessed for IDRS which requires answers to three simple questions and a waist measurement.
- The subjects were given scores according to physical activity (Sedentary, mild, moderate, vigorous exercise or strenuous work).
- The anthropometric measurement waist circumference (that indicates both central as well as general obesity) was measured by using a measuring tape.
- The score for family history was given according to the questionnaire.
- After all this, the score for each volunteer was calculated and categorized according to Table 2.
- We assessed fasting capillary blood glucose (FBG) of all subjects.

Inclusion Criteria

Medical Students

Exclusion Criteria

- Unwilling subjects.
- Known case of type 2 D.M subjects were excluded from the study.

Table-2: Risk Interpretation according to IDRS Score

High risk	**≥ 60**
Moderate risk	**30-50**
Low risk	**<30**

OBSERVATIONS AND RESULTS

- It was observed that 4%, 42% and 55% students were in High, Moderate, and Low risk group, respectively, for developing type 2 DM.
- The mean abdominal obesity in high risk students was 97.75 ± 5.86 as compared to 85.97 ± 11.48 in moderate and 79.3± 7.90 low risk students.($p<0.000004$).
- 47% students were having sedentary lifestyle.
- Family history of diabetes in either or both parents was present in 36% students.
- Mean FBG of students in high risk group was 91.53 ± 15.68 mg/dl and one student was found to be pre diabetic.

Table-3: Risk Interpretation in subjects in our study

Risk	**No. of students**	**Percentage (%)**
High	9	4
Moderate	91	41
Low	122	55

Table 4: Comparison of waist circumference with IDRS score

IDRS	**<30**	**30-50**	**≥ 60**
W.C.(cm) (Mean ± SD)	79.3 ± 7.90	85.97 ± 11.48	97.75 ± 5.86

DISCUSSION

- In the study population, it was found that 4% subjects have high risk, 41% have moderate risk and 55% have low risk (table 3) of developing diabetes in future.
- This simple and cost effective IDRS could thus serve as a tool for a primary care physician or a health worker to identify at risk individuals for both diabetes and cardiovascular diseases.
- IDRS attempts to identify individuals at risk. Further investigations like blood glucose estimation for those having IDRS>60 is the 2nd step for screening the individuals.
- So, unnecessary investigations for identification of type 2 D.M are avoided and this definitively reduces the economic burden.
- Prevention of obesity and promotion of physical activity are the future plans of action which can be suggested in the form of regular exercise and diet planning for the students.
- Both macro vascular and micro vascular complications cause significant morbidity and mortality among diabetic subjects.
- Hence, it is necessary to detect the large pool of undiagnosed diabetic subjects in India and offer early therapy to these individuals.
- We recommend that every individual above 18 years should be assessed for the risk of developing diabetes by calculating the IDRS to identify future risk of type 2 D.M. This will aid in early detection and prevention of further complications of type 2 D.M**.**

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