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INDIAN DIABETES RISK SCORE FOR SCREENING OF UNDIAGNOSED PRE-DIABETIC INDIVIDUALS OF SAKKARDARA REGION OF NAGPUR CITY

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ABSTRACT

Objective: Screening of undiagnosed Pre-diabetic individuals according to Indian Diabetes Risk score. **Method:** Cross sectional study conducted in January 2017 in *Swasthyarakshan* OPD of Government Ayurved hospital, Nagpur. The individuals were included of the age more than > 30 years residing in the *Sakkardara* region of Nagpur city (lower economic status and middle socioeconomic status). But confirm cases of Diabetes were excluded. We were a group of 6 volunteers of department of Swasthavritta of Government Ayurved College, Nagpur. We conducted screening of individuals according to inclusion criteria in our OPD. As per responses of individuals we collected the data for Indian Diabetes Risk Score i.e. Age, Waist circumference, Physical activity and Family. **Result:** In this study we have observed that 150 subjects from lower and middle socioeconomic community of Sakkardara region of Nagpur city. Out of these subjects (6.6%) were in low risk, (40%) in were in moderate risk and (53.4) were in high risk group as per the Indian Diabetes Risk Score. **Conclusion:** The Indian Diabetes Risk Score is highly sensitive test for early diagnosis of Pre-diabetes, and if screening is done in the pre-diabetic stage then we can prevent it into conversion in Diabetes mellitus and late diabetic complication in Indian community.

Keyword: Diabetes, Pre-diabetes, IDRS

INTRODUCTION

Diabetes is a non- communicable disease and noteworthypublic health problem. All over the world there is continuous rise in prevalence and incidence rate of Diabetes. Diabetes mellitus is a condition in which there is hyperglycemiaand disturbance of carbohydrate, protein and fat metabolism that are associated with absolute or relative deficiency of insulin action and/or insulin secretion. Therefore, Diabetes mellitus is called as a metabolic disorder. According to recent data of World Health Organization estimates that more than 180 million

people worldwide have diabetes. These numbers are expected to rise more than double over the next two decades, to reach a total of 366 million by 2030. The recent World Health Organizationreport suggests that over 19% of the world's diabetic population currently be located inIndia. This interprets to over 35 million diabetic subjects, and thisnumberis probable to rise nearlyto 80 million by 2030. Because of this rising trend forecast a significant health burden due to Diabetes in India. Unluckily more than 50% of the diabetic population in India remains unaware of their diabetic status which add to the disease burden. The government of India has initiated the national Diabetes Control Program on pilot basis during 7th five year plan in 1987 and is planning to start a diabetes prevention programme shortly. For such programme to be fruitful, it is necessary to determine cost effective methods for identifying undiagnosed diabetic subjects in our country.

Pre-diabetes is a precursor condition for type 2 Diabetes mellitus. Although in many cases it is reversible, Pre-diabetes frequently remains undiagnosed and therefore risk of developing type 2 Diabetes Mellitus is increased. The risk factors for pre-diabetes are same as those for type 2 diabetes mellitus. An individual's risk factors for pre-diabetes include obesity, high waist circumference, family history of diabetes, hypertension, CVD etc. Pre-diabetes itself is a risk factor for type 2 Diabetes Mellitus. Therefore early diagnosis and prevention at proper time in Pre-diabetes by Indian Diabetes risk score may prove beneficial to avoid it becoming type 2 Diabetes Mellitus. In this paper we report on a simplified Indian Diabetes Risk Score (IDRS) for identifying undiagnosed pre-diabetic subjects using four simple parameters which require minimum time and effort but can help to considerably decrease the cost of screening.

REVIEW ON IDRS:-

Indian Diabetes Risk Score was developed by Chennai Urban Rural Epidemiology Study(CURES) based on multiple logistic regression analysis using four simple parameters namely age, waist circumference, physical activity and family history. It is cost effective for early diagnosis and prevention of Diabetes. The parameters and score of it which is included in IDRS has tabulated below.

Table 1: Indian Diabetes Risk Score	
Particulars	Score
1)AGE:- a) <35 years	0
b) 35-49 years	20
c) >50 years	30
2)WAIST CIRCUMFERENCE:-	
a) Waist< 80 cm(female)	0
Waist <90 cm(male)	
b) Waist >80-89 cm(F)	10
Waist >90-99 cm(M)	
c) Waist>90 cm(F)	20
Waist >100 cm(M)	
3) PHYSICAL ACTIVITIES	
1. Vigorous exercise (regular) or strenuous (manual) work at home/work.	0

2. Moderate exercise (regular) or moderate physical activity at home/work.	10
3. Mild exercise (regular) or mild physical activity at home/work.	20
4. No exercise and sedentary activities at home/work.	30
4) FAMILY HISTORY OF DIABETES	
1. No diabetes in parents	0
2. One parent is diabetic	10
3. Both parents are diabetic	20

Score Calculation:-

≥60:-Veryhigh risk of having diabetes.

30-50:- The risk of having diabetes is moderate.

<30:- Risk of having diabetes is probably low

MATERIAL METHOD:-

Cross sectional study conducted in January 2017 in *Swasthyarakshan* OPD of Government Ayurved hospital, Nagpur. The individuals were included of the age more than >30 years residing in the *Sakkardara r*egion of Nagpur city (lower economic status and middle socioeconomic status). But confirm cases of Diabetes were excluded. We were a group of 6 volunteers of department of Swasthavritta of Government Ayurved College, Nagpur. We conducted screening of individuals according to inclusion criteria in our opd. As per responses of individuals we collected the data for Indian Diabetes Risk Score i.e. Age, Waist circumference, Physical activity and Family.

Table 2:showing Pre-diabetes with the level of risk by IDRS

Level of risk	No of persons	Pre-diabetic Cases
Low < 30	10	6.6%
Moderate > 30 - 50	60	40%
High > 60	80	53.4%

OBSERVATIONS AND DISCUSSION

In this study we have observed that 150 subjects from lower and middle socioeconomic community of *Sakkardara* region of Nagpur city. Out of these subjects (6.6%) were in low risk, (40%) in were in moderate risk and (53.4) were in high risk group as per the Indian Diabetes Risk Score.

According to parameter of IDRS the observations are as follows

- Age wise result found that whose age more than > 40 years of age those people are most prone to moderate risk and these moderate risk persons have very high chance of having pre-diabetes. Those persons whose age is more than > 50 years havegreater chance of very high risk of Diabetes and these persons having the risk of becoming Diabetes in coming years.
- According to waist circumference most individuals found that more than >90 cm of waist circumference in male individuals and female individuals also having the high risk for pre-diabetes and becoming Diabetes in coming years.
- According to physical activity most peoplewere found that they are less physically active at home or work and most of the female found physically inactive.

- According to family history of Diabetes most individuals have one parent diabetic and there is high risk of Diabetes in next coming years.
- According to sex wise ratio, female individuals were more than male individualsincluded in this screening and those females are at high risk of Diabetes who are physically inactive and thosewho have central obesity is more.

The observation revealed that IDRS is highly sensitive and specific for determining the risk for pre-diabetes in community. The risk of Diabetes increases with increase in Indian Diabetes Risk score. So that this score is more useful for screening the risk of pre-diabetes in Indian community.

CONCLUSION

The Indian Diabetes Risk Score is highly sensitive test for early diagnosis of Pre-diabetes, and if screening is done in the pre-diabetic stage then we can prevent it into conversion in Diabetes mellitus and late diabetic complication in Indian community. In Indian Diabetes Risk Score there are total four parameters in which Age and family history are non- modifiable factors in which we can't do any changes and because of this we can't reduce the score of IDRS. Waist circumference and physical activity are the modifiable factors, means which can be altered according to human lifestyle.We can reduce the waist circumference by reducing obesity and those persons who are physically inactive can reduce the score by becoming physically active or increasing exercise. So we can conclude that the risk of diabetes can be reduced by the change in modifiable factor in IDRS andit is observed that it is cost effective method for diagnosing pre-diabetes.

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