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Risk Stratification and Clinical Profile of Newly Detected Type 2 Diabetes Mellitus in Rural India

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Abstract: ***Aim of the study is to risk stratify and assess the clinical profile of newly detected type 2 DM in rural India. Introduction: The determinants of the epidemic are the rapid epidemiological transition associated with changes in dietary patterns and decreased physical activity. A wide range of factors are contributing, amongst which diet and lifestyles are biggest culprit in the case of DM in addition to the genetic factors. Two important determinants are genetic background and obesity. Other major risk factors are physical inactivity and insulin resistance. Rural areas which have undergone socio-economic transition in the last two decades show nearly a threefold increase in the prevalence of diabetes. Results: Among 50 patients attending the study, the major age group is between 40 and 50. The mean age of onset of diabetes is 49.2. Male to female ratio is 3:2Most patients are illiterate and have farming as occupation and majority are Hindus.23 patients have first degree relatives with diabetes and 4 patients have diabetes extending up to 2 generations. Even though the study was done in rural population, childhood obesity is present in 52% of patients. Smoking and alcoholism is present in 20% and 22% respectively.64% have moderate to sedentary physical activity. 74% are obese. 83% of male and 90% of females have abdominal obesity.60% have normal blood pressure, 20% have pre HTN and 10% have stage1 and 10% have stage2 HTN. Conclusion: Rural India which is well known for hard working and fit personalities is slowly being replaced by childhood obesity, less physical activity, adult obesity, increased waist circumference and increased incidence of metabolic diseases like diabetes and coronary artery disease.***

Keywords: type 2 diabetes, obesity in diabetes, rural India, risk factors of diabetes, clinical profile of diabetes

1. Introduction

Diabetes mellitus is defined as a metabolic abnormality characterized by hyperglycemia and disturbances of carbohydrate, fat and protein metabolism that are associated with absolute or relative deficiency in insulin secretion and or insulin action [1]. According to the recent global estimates of the WHO, there will be 300 million people with diabetes by the year 2025 [2].

The determinants of the epidemic are the rapid epidemiological transition associated with changes in dietary patterns and decreased physical activity. A wide range of factors are contributing, amongst which diet and lifestyles are biggest culprit in the case of DM in addition to the genetic factors. Two important determinants are genetic background and obesity.

Other major risk factors are physical inactivity and insulin resistance. Rural areas which have undergone socio-economic transition in the last two decades show nearly a threefold increase in the prevalence of diabetes.

This study was initiated with the objective to estimate the risk factors of people newly diagnosed to have type 2 diabetes mellitus.

2. Methodology

This is a cross-sectional study, conducted among patients of rural background visiting NRIGH a hospital of NRI medical college from December 2015 to June 2016 with symptoms suggestive of diabetes mellitus. Diagnosis of diabetes was made by oral glucose tolerance test and HbA1C.

Risk stratification was done for all people diagnosed as diabetes. Factors like socio-demographic details, family history of diabetes, history of childhood obesity, symptoms, physical activity, smoking, alcoholism were recorded from the patient. Subsequently height, weight, abdominal circumference, waist hip ratio and blood pressure were measured.

3. Statistical Analysis

The data was entered in MS excel 2007 and analyzed using descriptive statistical measures like mean and percentages.

4. Results

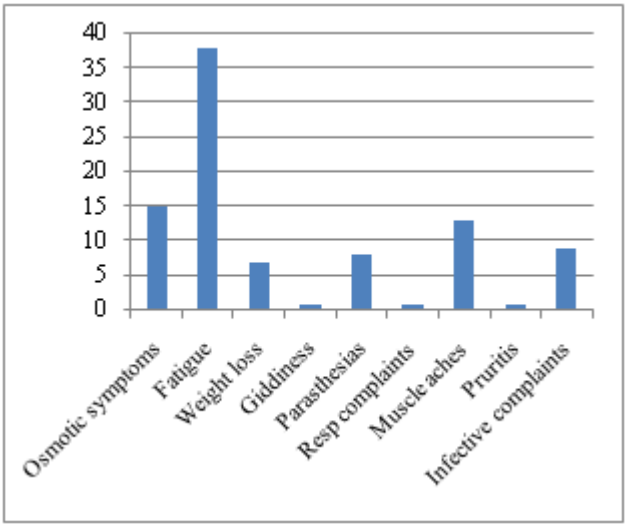
Among 50 patients attending the study, the major age group is between 40 and 50. The mean age of onset of diabetes is 49.2.
Male to female ratio is 3:2

Most patients are illiterate and have farming as occupation and majority are Hindus. 23 [46%] patients have first degree relatives with diabetes and 4 patients have diabetes extending up to 2 generations.

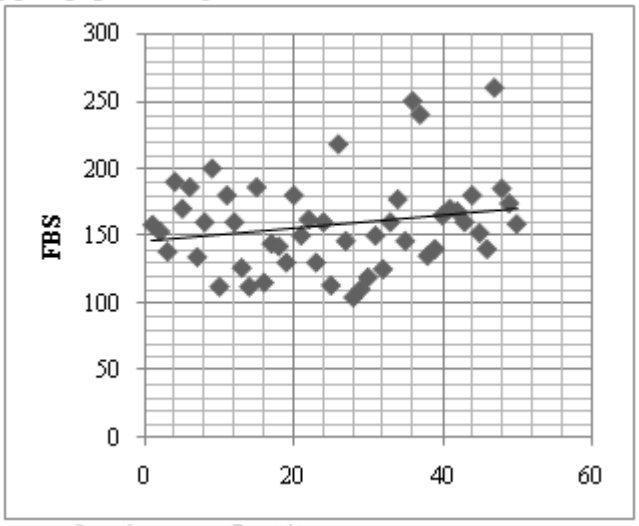
Even though the study was done in rural population, childhood obesity is present in 52% of patients. Smoking and alcoholism is present in 20% and 22% respectively. 64% have moderate to sedentary physical activity. 74% are obese. 83% of male and 90% of females have abdominal obesity. 60% have normal blood pressure, 20% have pre HTN and 10% have stage1 and 10% have stage2 HTN.

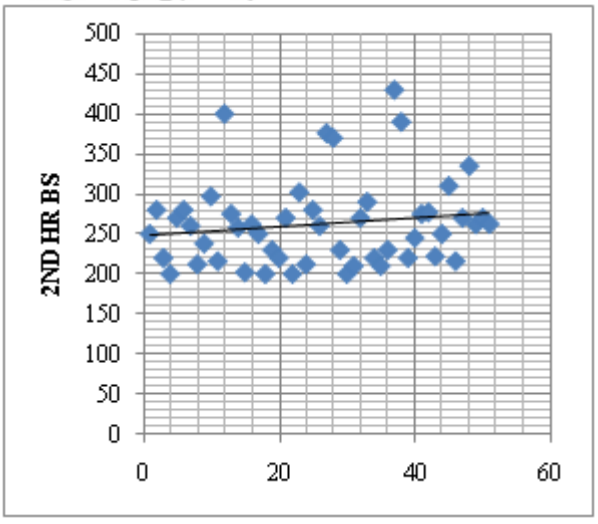
Sl No	Variable	N=50
1	Age in years	
	40-50	30
	51-60	16
	>60	4
2	Sex	
	Male	30
	Female	20
3	Educational qualification	
	Illiterate	16
	Primary	8
	High school	14
	10th and above	12
4	Religion	
	Hindu	37
	Muslim	10
	Christian	3
5	Occupation	
	Farmer/ agricultural laborer	25
	Housewife	17
	Others	8
6	Family history of diabetes	
	Present	23
	Absent	27
7	History of childhood obesity	
	Present	26
	Absent	24
8	Physical activity	
	Active	18
	Moderate	20
	Sedentary	12
9	Smoking	
	Present	10
	Absent	40
10	Alcoholism	
	Present	11
	Absent	39
11	BMI	
	18.5-22.9	3
	23-24.9	10
	25-29.9	19
	30-34.9	14
	>35	4
12	Waist circumference	
	Male	
	>90	25
	<90	5
	Female	
	>80	18
	<80	2
13	Waist hip ratio	
	Male	
	<0.95	7
	0.96-1.0	11
	>1	12
	Female	
	<0.8	2
	0.81-0.85	4
	>0.85	14
14	Blood pressure	
	Normal	30
	Pre HTN	10
	Stage1 HTN	5
	Stage2 HTN	5

Fatigue is the commonest presenting complaint followed by osmotic symptoms like polyurea, polydypsia.

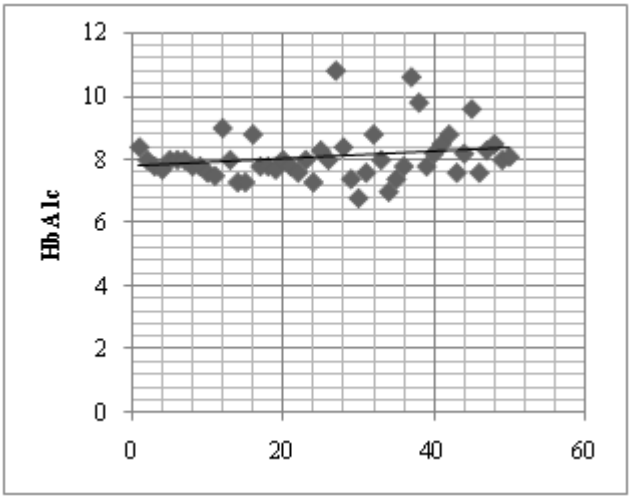


OGTT was done in all patients with symptoms suggestive of diabetes. Fasting blood sugar ranged from 110mg/dl to 260 mg/dl with a mean FBS of 158.6 mg/dl. 2nd hr blood sugars ranged from 200mg/dl to 400 mg/dl with a mean 2nd hr sugar of 262.4 mg/dl.





Gylcosylated hemoglobin is done in all patients to diagnose diabetes and the diagnostic value is more than or equal to 7. The value ranged from 7 to 10.8 and the mean value is 8.



5. Discussion

India, with 1.2 billion people is the second most populous country in the world and is currently experiencing rapid epidemiological transition. Under nutrition due to poverty which dominated in the past, is being rapidly replaced by obesity associated with affluence6. Industrialization and urbanization also contribute to increased prevalence of obesity. Studies from different parts of India have provided evidence of the rising prevalence of obesity. This study was done in rural population and risk factors leading to diabetes are studied. Rural India which is well known for hard working and fit personalities is slowly being replaced by childhood obesity, less physical activity, adult obesity, increased waist circumference and increased incidence of metabolic diseases like diabetes and coronary artery disease.

DM was highest in people who were illiterate and with primary education. This shows role of education in prevalence of diabetes.

DM was more prevalent in housewives and men who are moderate to sedentary men with farming profession.

DM was higher in the people who had a positive family history of diabetes as compared to those who did not .the above is consistent with results Guptha et al [3].

DM was prevalent in obese individuals. Similar results were reported by Mc Keigue PM 1991 [4].

Among diabetics 20% are hypertensive. Similar results were reported by Gress et al [5].

6. Conclusion

Rural India which is well known for hard working and fit personalities is slowly being replaced by childhood obesity, less physical activity, adult obesity, increased waist circumference and increased incidence of metabolic diseases like diabetes and coronary artery disease.

References

[1] Report on the cologne digital Sanskrit lexicon project. Assessed on 10 February 2012.
[2] King Hubert RE. Herman WH et al. global burden of diabetes. 1995-2025. Diabetes care 1998 21:1441-31
[3] Guptha et al. prevalence of diabetes in India. Symposia on diabetes in Asia 6-7 February 1981.
[4] Mc Keigue PM et al. Relation of central obesity and insulin resistance with high diabetes prevalence and cardio vascular risk in south Asians. Lancet1991; 337:382-6.
[5] Gress TW et al. hypertension and anti hypertensive therapy as arisk factor for diabetesmellits. New ingland journal of medicine 2000;342:905-12.

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