CLINICAL AND SOCIODEMOGRAPHIC PROFILE OF TYPE 2 DIABETES MELLITUS IN RURAL POPULATION OF VINDHYA REGION

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ABSTRACT

BACKGROUND
Diabetes Mellitus (DM) is a major epidemic of this century. The prevalence of Type 2 Diabetes Mellitus (T2DM) is 11% in urban areas, while it is 3% - 9% in rural areas. The prevalence of diabetes and its complications is now rapidly increasing in India among the poor in the urban slum dwellers, the middle class and even in the rural areas. This is due to changes in lifestyle and dietary habits associated with urbanisation and globalisation.

MATERIALS AND METHODS
500 type 2 diabetic patients from rural area of Vindhya region were included in the study. A detailed history and thorough clinical examination was done. Anthropometric measurements were recorded.

RESULTS
Out of 500 patients, 277 (55.4%) were males and 223 (44.6%) were females. Most of the patients, 303 (66.6%) were in the age group of 41 - 60 years with mean age of 57 yrs. In present study 71.8% patients were addicted to tobacco chewing, 29% were addicted to smoking and 11.2% were addicted to alcohol. 37.4% patients have positive family history. 17.4%, 61.8% and 20.8% patients have diabetes duration of < 5 yrs., 5 - 10 yrs and > 10 yrs respectively. 33% patients were on irregular treatment. 16.6% patients were hypertensive, 63.6% patients were overweight (25 - 29.9 kg/m²) and 5.2% patients were obese (> 30 kg/m²). In present study, 59.56% male patients have waist circumference (WC) ≥ 90 cm and 60.98% female patients have WC ≥ 80 cm. 25.60% patients have hypertriglyceridaemia and 18% patients have hypercholesterolaemia. 68.8% patients have poor glycaemic control.

CONCLUSION
The present study revealed that poor glycaemic control, irregular medication intake, obesity, dyslipidaemia and hypertension were prevalent in T2DM patients. Hence, the overall risk profile in patients from rural Vindhya region was very poor and needs improvement. These data can support health professional's actions to effectively maintain and provide a more comprehensive approach to management of T2DM.

KEYWORDS
Rural, Clinical Profile, Sodo-Demographic Profile, Type 2 Diabetes Mellitus.


BACKGROUND
Diabetes mellitus refers to a group of common metabolic disorders that share the phenotype of hyperglycaemia with disturbance of carbohydrate, fat and protein metabolism resulting from defects in insulin secretion, insulin action or both. Several distinct types of DM are caused by a complex interaction of genetic and environmental factors. Depending on the aetiology of the DM, factors contributing to hyperglycaemia include reduced insulin secretion, decreased glucose utilisation and increased glucose production.

DM is accepted as a worldwide epidemic with an estimated increase in prevalence from 2.9% in 2000 to 4.4% by 2030. It has been estimated that the global burden of DM for 2015 was 415 million people, which is projected to increase to 642 million in 2040. In 2015 number of men and women with diabetes was 215.2 million and 199.5 million, and by 2040 it will be 328.4 million and 313.3 million. In 2015 number of diabetics in urban and rural area was 269.7 million and 145.1 million and by 2040 it will be 477.9 million and 163.9 million. In 2015 one in 11 adults had diabetes and by 2040 one in 10 adults will have diabetes. The Indian Council of Medical Research India Diabetes Study (ICMR-INDIAB study) showed that India had 62.4 million people with diabetes in 2011. These numbers are projected to increase to 101.2 million by 2030. The prevalence of T2DM is 11% in urban areas, while it is 3% - 9% in rural areas. The prevalence of diabetes and its complications is now rapidly increasing in India among the poor in the urban slum dwellers, the middle class and even in the rural areas. This is due to changes in lifestyle and dietary habits associated with urbanisation and globalisation.

Unfortunately, the vast majority of population (70%) in India live in rural areas. Screening for diabetes is seldom done in rural areas, resulting in a much greater burden of undiagnosed diabetics in rural areas. Most of these cases are...
type 2 diabetics. The earlier a person is diagnosed and management initiated, the better the chances of preventing harmful and costly complications.

MATERIALS AND METHODS
The present observational study was carried out in patients from rural areas attending Medicine Outpatient Department (MOPD) and those admitted in Department of Medicine, S.S. Medical College and associated S.G.M. Hospital, Rewa (M.P.) from 01st April 2016 to 31st July 2017. A total of 500 T2DM patients from rural population of Vindhya region were included in the study.

Inclusion Criteria
1. Type 2 diabetic patients living in rural area.
2. Age > 30 years.

Exclusion Criteria
1. Type 1 diabetic patients.
2. Diabetic, but belong to urban area.
3. Not giving consent.

Diabetes was defined by American Diabetes Association (ADA) 2011 criteria- Plasma fasting blood glucose ≥ 126 mg/dL or 2-hour plasma post-glucose value ≥ 200 mg/dL or patients with classical symptoms of hyperglycaemia or hyperglycaemic crisis plus random blood glucose concentration ≥ 200 mg/dL (≥ 11.1 mmol/L) or HbA1c > 6.5%. Hypertension was diagnosed according to JNC-7 criteria, those with systolic blood pressure > 140 mmHg and diastolic blood pressure > 90 mmHg or who were taking antihypertensive medication were considered to have hypertension. Blood sample for lipid profile was taken after an overnight fast. Dyslipidaemia was defined if patient had total cholesterol > 200 mg/dL, serum triglyceride > 150 mg/dL, serum HDL < 40 mg/dL in males, < 50 mg/dL in female and serum LDL > 100 mg/dL.

The patients were included in the study after written and informed consent. Descriptive data like age, name, gender, religion, educational status, personal history, medical and medication history were taken after interviewing the patients. Patient’s history and details were recorded on predesigned proforma. They underwent a thorough physical examination which included weight, height, waist circumference and Body Mass Index (BMI) which were calculated. Waist circumference was measured using a non-stretchable tape in horizontal position just above iliac crest. Data were completed by consulting medical reports of patients.

Data was at first arranged in Microsoft Excel 2016 worksheet, developed by Microsoft, Redmond, Washington. Data is expressed as mean ± standard deviation for continuously distributed variables and in absolute numbers and percentages for the discrete variables.

RESULTS
Out of the 500 patients studied, 277 (55.4%) were males and 223 (44.6%) were females. Most of the patients 303 (66.6%) were in the age group of 41 - 60 years with mean age of 57 yrs. In our study, 56% patients were illiterate. In our study 71.8% patients were addicted to tobacco chewing. 28% tobacco smoking, 11.2% alcohol and 9.4% patients were addicted to both tobacco and alcohol.

In our study 37.4% patients have positive family history; 17.4%, 61.8% and 20.8% patients have diabetes duration of < 5 yrs, 5 – 10 yrs and > 10 yrs. respectively. Out of 500 patients, 66.8% patients were on oral hypoglycaemic agents (OHA), 16.4% were on insulin, 3% patients were treated with a combination of oral hypoglycaemic agents and insulin and 13.8% patients were not taking any type of treatment. 33% patients were on irregular treatment.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Category</th>
<th>No. of Patients</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Male</td>
<td>277</td>
<td>55.4%</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>223</td>
<td>44.6%</td>
</tr>
<tr>
<td>Age Group (Years)</td>
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<td>6%</td>
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<tr>
<td></td>
<td>41-50</td>
<td>150</td>
<td>30%</td>
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<tr>
<td></td>
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<tr>
<td></td>
<td>61-70</td>
<td>90</td>
<td>18.8%</td>
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<tr>
<td></td>
<td>&gt;70</td>
<td>73</td>
<td>14.6%</td>
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<tr>
<td>Educational Status</td>
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</tr>
<tr>
<td></td>
<td>Literate</td>
<td>220</td>
<td>44%</td>
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<tr>
<td>Addiction</td>
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<td></td>
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<td></td>
<td>Alcohol</td>
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<tr>
<td></td>
<td>Tobacco + Alcohol</td>
<td>47</td>
<td>9.4%</td>
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<td>Family History</td>
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<td>Absent</td>
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<td>Duration of Diabetes</td>
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<td>5-10 years</td>
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<td></td>
<td>&gt;10 years</td>
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<td>Type of Treatment</td>
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<td>OHA</td>
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<td>OHA + Insulin</td>
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<td>Regularity of Treatment</td>
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<tr>
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<td>Irregular</td>
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<td>33%</td>
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</table>

Table 1. Demographic Profile of Patients

In our study, 16.6% patients were hypertensives.

Figure 1. Prevalence of Hypertension
In our study, 63.6% patients were overweight (25 - 29.9 kg/m²) and 5.2% patients were obese (> 30 kg/m²).

DISCUSSION
In our study, 68.8% patients have FBS ≤ 140 mg/dL and 31.2% patients have FBS > 140 mg/dL.

CONCLUSION
Our study was an attempt to highlight the scenario of T2DM in rural areas of Vindhya region. An insight into this region would hence prove valuable in formulating preventive and treatment policies specific for this region. The present study revealed that obesity, dyslipidaemia, family history of diabetes, uncontrolled glycaemic status, hypertension, non-adherence to treatment and addiction were highly prevalent in T2DM subjects. Hence, the overall risk profile was very poor. Thus, more thought should be given to the importance of multiprofessional team education in diabetic patient care, enlightening them about nature and progression of the disease and possible complications. They may benefit from periodical health promotion and education programs in the area of diet management, self-care and adherence to treatment. Clinicians involved with managing cases of diabetes should give sufficient importance and information...
regarding lifestyle modifications, encouraging diet control and exercise pattern among their patients to achieve better control of diabetes.

REFERENCES


