Original Article

A CROSS SECTION STUDY ON DIABETES AND ANTI DIABETIC DRUGS IN SATHUPALLY REGION

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ABSTRACT

Recent studies in India indicate rising trends of diabetes even in rural areas. Continuous monitoring of the diabetes situation is required by repeated cross sectional studies in both urban rural to plan control measures. Aim: To estimate the prevalence of Type 2 diabetes in a sample of rural population and explore associations between diabetes and known risk factors. Materials and Methods: A cross sectional study was carried out in Sathupally region in the rural field practice area of a mother Teresa Pharmacy College in Sathupally, India. All eligible adults of both genders were included and screened for diabetes by hospital survey. 500 subjects were examined. Family history of diabetes was also elicited. Data was analyzed by descriptive statistics using proportions with 95% confidence intervals. Various associations were explored using Odds Ratio with 95% confidence intervals as applicable. Results: The prevalence of diabetes mellitus was 9.1% (91/500); 95% CI (7.4, 11). Most cases of newly detected diabetics were in the age group 30 – 40 years. There was no association between gender and diabetes (OR = 1.38, 95% CI 0.88, 2.17). Overweight status was associated with diabetes: 38.5% (35/91) of diabetics were overweight compared to 18.6% (169/909) of non-diabetics (OR = 2.74, 95% CI 1.69 and 4.41). In addition, family history was strongly associated with diabetes: 27.5% (25/91) of diabetics gave positive family history compared with 9.4% (85/909) of non-diabetics (OR = 3.67, 95% CI = 2.13, 6.30). Conclusion: The burden of diabetes was present in the rural population studied. The associated known risk factors were also prevalent and showed strong relationship with diabetes. Diabetes mellitus erstwhile thought to be a disease of urban life.

INTRODUCTION

The diabetes situation in India especially in rural areas has worsened in the last two decades. Estimates from studies in the decade 1990 to 2000 show prevalence ranging from 6.3% to 11.6%.[1-5] Majority of studies in the subsequent decade indicate a rising trend. The mother Teresa Pharmacy College carried survey throughout Sathupally region in 500 subjects. In Sathupally Diabetes Study done near hospital region and in rural areas. [6] we have done survey based on cross-sectional survey done in rural areas of Sathupally region has revealed a very high prevalence of 19.5%[7] This study has reported the highest prevalence of diabetes in a population in India.

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A recent study from Maharashtra showed a high prevalence of diabetes in a population in India.[8] A very high prevalence of 13.2% was also reported in a rural population of Andhra Pradesh by Chow et al 2006.[09] There are indications that Indians have a younger age of onset of diabetes compared to other ethnic groups.[10] Whereas a study in 1986 [11] at Delhi reported that none of the diabetics were aged less than 30 years, the National Urban Diabetes Survey (NUDS) done in 2001 showed that the prevalence of diabetes in those aged below 30 was 5.4%.[6,12] A further shift towards younger age groups was demonstrated by the Chennai Urban Rural Epidemiology Study (CURES).[13] These temporal trends towards lower age groups are disturbing and have long term impact on health and economy of the country. Gender distribution from community studies in India show conflicting results. While some studies show female predisposition [4, 12,14, 15] others have reported higher prevalence in males.[14,16] Still others, have found no gender difference in prevalence.[6,12,17]. The association of socio-economic status and diabetes also shows interesting changes. What was earlier considered a disease of the rich and affluent is now also prevalent among the blue collar workers. The Chennai Urban Population Study (CUPS) [14, 17] was done to assess the effect of so-

cioeconomic status on the prevalence of Type 2 diabetes and related abnormalities. The prevalence was 12.4% in the middle-income group and 6.4% in the lower Inco. Similarly, a study from New Delhi showed that even the slum dwellers had high prevalence of obesity, glucose intolerance and dyslipidemia.[15,18] Moreover, studies show that poor diabetic subjects are more prone to complications as they have inadequate access to health care.[16,19]

Though a number of studies on diabetes have been carried out in the country, and the risk factors are well known, we require continuous monitoring of the diabetic situation in the country which is in a state of rapid socioeconomic transition with attendant lifestyle me group changes. In view of this, the present study was carried out to get an estimate of diabetes problem and associated risk factors in a sample of a rural population in Sathupally.

MATERIALS AND METHODS

Permission from hospital to investigate the diabetic patients

To carry out the study we got permission from the college principal, the no objection with, and requesting letter to the Dr. Neelagiri venkat hospital were submit to carry out the study.

Type of study

Cross sectional community study in Sathupally region.

Study design

A cross-sectional population-based study.

Study area

The study was conducted in the rural area of Sathupally, Khammam dist, TS, India. The rural field practice area is located about 70 km from the city of Khammam, totaling a population of **50000**.

Sampling

Three villages in the rural field practice area were selected. These three villages were selected due to their proximity to the rural health center to facilitate treatment and follow up of the detected cases. In these villages, all eligible adults of both genders were screened for diabetes mellitus by house-to-house survey.

Interview and data collection

On visiting the house and hospitals. All diabetic patients invited to participate in the study and were offered to sign a written consent form. All those who agreed were included in the study. Data were collected from the study participants by face to face interview and physical examination on a pretested structured instrument. Physical examination included anthropometry (height, weight, waist circumference, and hip circumference), blood pressure measurements in sitting position, and general examination. Blood glucose estimation was done using Glucometer (Bayer Corporation — Principal Sensor, calibrated for plasma glucose) [22]

Different Material & Equipments

Weighing Machine

Figure 1: Weighing Machine: Omron

Ask the patient to stand properly on the weighing machine. Note down the readings which are appeared on the machine.

One Touch Glucometer

Figure 2. Glucometer: Ultra Easy

The diabetic patient's finger was cleaned by using the spirit. Patient's finger was picked by using sterile needle. The blood sample was touched on the sensor of the glucometer. The readings were noted.

Height Measuring Instrument

Figure 3. Sk-L06

➤ Ask the patient to cooperate with us to measure the height.

➤ Note down the readings.

Questionary Format: Enclosed

Methods of measuring the parameter:

Study area

The study was conducted in the rural field practice area of Sathupally region, Telangana, India. The rural field practice area is located about 15 km from the city of Sathupally selected a population of **500** members.

Sampling

Around Sathupally region, we have done survey on **500** diabetic patients in these villages, all eligible adults of both gender were screened for diabetes mellitus by hospital survey.

Interview and data collection

On visiting the hospital, members who were 25 years old and above of either gender, were invited to participate in the study and were offered to sign a written consent form. All those who agreed were included in the study. Data was collected from the study participants by face to face interview. Physical examination by blood pressure measurements in sitting position, and general examination. Blood glucose estimation was done using Glucometer (Bayer Corporation — Principal Sensor, calibrated for plasma glucose)

Diet Control

The diets of the population were largely cereal-based, with rice. Extensive dietary and nutritional surveys conducted earlier on this and similar rural populations by our Institute had shown that these diets were inadequate in several respects. The mean calorie intake was of the order of 2,400 per adult. The protein intake was around 50 gm., and the protein was largely derived from vegetable sources. Clinical manifestations of vitamin B complex deficiencies and anemia were frequent. The majority of the population was illiterate and unaware of the significance of diabetes. There was much reluctance and resistance on their part to participate in any blood tests.

Age: By asking the diabetic patient information.

Gender: By physical identification of a person.

Diabetes type: By examine of patients medication by examine if they are taking insulin or other medication as treatment.

Hypertension: By measuring B.P and by observing patients medication.

High cholesterol: By examine patient medication.

Heart disease: By asking some heart related questions.

Other chronic diseases: By asking the symptoms of diabetic patients.

General health: By face to face questionary.

Symptoms: By asking the symptoms of diabetes patient by face to face interview.

Fatigue: By observing their physical strength.

Body pains: By asking the patients.

Shortness of breath: By asking the patient by face to face interview.

Increased thirst: Asked by face to face interview.

Dry mouth: By asking symptoms of patient.

Decreased appetite: By asking the symptoms of patient.

Nausea vomiting: By asking the symptoms of patient

Abdominal pain: By asking the symptoms of patient

Frequent urination: By asking the symptoms of patient

Blood sugar levels: By observing the patient's medical history.

Morning headache: By asking the symptoms of patient

Night mares: By asking the symptoms of patient

Night sweat: By asking the symptoms of patient

Light headedness: By asking the symptoms of patient

Shakiness: By asking the symptoms of patient

Intense hunger: By asking the symptoms of patient

Fainted or loss of consciousness: By asking the symptoms of patient

Average time of blood sugar levels checkup: By asking diabetic patient.

Smoking habit: By face to face interview.

Drinking habit: By face to face interview.

Physical activities: By asking patient if they are doing physical exercise or not.

Diet: By asking the patient.

Medication: By checking the patient's medication.

Medical care: Asking questions by face to face interview.

RESULTS

Causative Factors

According to this study we have identified different causative factors for their diabetes mellitus are

Table 1. Causative factors of diabetes

Causes	No. Of Patients
Lack of physical exercise.	250
Alcohol or smoking or both	100
Improper diet	75
heredity	50
Improper life cycle	25

Table 2. Associated risk factors

Risk Factor	No. Of Patients
Hypertension	375
Hypoglycemia	400
Headache	323
Frequent Urination	485
Increased Thirst	480
Fatigue	456
Abdominal Pain	258
Delayed Wound Healing	430
Over Sweating	466
Increased Appetite	490
Retinopathy	300
Neuropathy	200
Nephropathy	120

Prevalence of diabetes

According to by this study we have identified different prevalence's for diabetes mellitus.

➢ By avoiding the sugars & carbohydrates containing food.

➢ By taking the protein contained food.

> ➢ By taking the fibrous food.

> ➢ By taking more amount of vegetables instead of rice.

> ➢ By doing regular exercise.

> ➢ By avoiding the alcohol & smoking.

> ➢ By maintaining the good life style

Associated Risk Factors

According to this study we have identified different risk factors associate with diabetes mellitus.

DISCUSSION

The study to assess causative factors, prevalence of diabetes and its associated risk factors among all different age people and the most popular medication used by them in Sathupally rural region on the whole, a large percentage (75%) of the general population had heard about diabetes and its consequences were known to many but the methods by which the disease could be managed or prevented were known only to a few. In the general population, only a small number knew about the causes of diabetes and methods of its prevention. Persons with diabetes or, with positive family history of diabetes were likely to have higher exposure to education regarding the disease either through the treating doctor or would have sought more information through the media. Surprisingly, knowledge regarding healthy diet and causes of diabetes was poorly known even among the diabetic population. This is a reflection of the lack of adequate education regarding diabetes even in persons with diabetes. Therefore, there is need for more intensive diabetes patient education.

CONCLUSIONS

By this study we have examined that the most causative factors of diabetes mellitus are lack of physical exercise. Alcoholism , smoking ,improper diet, and heredity. The associated risk factors of diabetes mellitus are hypertension, hypoglycemia, fatigue, increase appetite, frequent urination, retinopathy, delay in wound healing by this study we have concluded the prevalence of diabetes mellitus are by avoiding the carbohydrate food, smoking and alcohol by taking the high amount of protein containing food. Finally the most popular and fast moving drugs to treat diabetes mellitus in the Sathupally rural area were

Diabetic Drugs

Metformin Hcl, Glipizide, Glimipramide

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