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Study of Prevalence And Awareness of Diabetes Mellitus in Rural/Urban Population in And Around Jaipur (Rajasthan) Conducted At Tertiary Centre.

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Study Of Prevalence And Awareness Of Diabetes Mellitus In Rural/Urban Population In And Around Jaipur (Rajasthan) Conducted At Tertiary Centre

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Abstract:
Introduction*: Diabetes mellitus is a major challenge and a clinical and public health problem in 21st century. India is the country with largest numbers of diabetic persons and has nearly 15% of global diabetic burden with about 45 million people with 10-15% in urban and 5-8% in rural area population. In India there are very scanty data on the level of awareness of people and prevalence of this disease to plan public health program. Therefore the study was conducted in this tertiary centre after approval of institutional ethical committee. Total 440 cases were included in this study from both rural and urban are who were either already diabetic or those found to have fasting blood sugar > 126 mgm% & PP > 220 mgm% were considered as diabetic.*
Result*: Out of 440 cases (rural 277 and urban 163) 396 (90%) were non diabetic and 44 (10%) were diabetic with male 242 (rural 128 and urban 114) and females 198 (rural 149 + urban 49) with % of diabetic in rural area 5.05% and urban area 18.40%. In rural area the education status was poor as compared to urban people. The diabetic person from rural area were mainly unskilled (73.42%) compared to urban area (26.58%) BMP (Body Mass Index) in rural area in diabetic persons was normal in 85.71% while in urban area it was normal in 73.33%. Overall about 75% of nondiabetic population in urban area knew what is diabetes but in rural area only 17% were aware of it. However those who were diabetic the % of awareness was high (90% and 50% respectively). The sedentary life style with high BMI were more in urban people than that of in rural area.*
Conclusion :*Prevalence of diabetes mellitus was higher in males compared to females in both urban and rural population. Educational status was better in urban but also was higher BMI with sedentary life style. There is need of good public health policies towards preventing and controlling diabetes at National and state levels.*

I. Introduction

Diabetes Mellitus is a major challenging clinical and public health problem in 21st century and could be considered a large global noncommunicable epidemic disease. It contributes to more than 4.5 million deaths annually worldwide while around 370 million people globally are estimated to be diabetic mainly in the group of more than 20 years of age. As per IDF(International Diabetic Federation) the India is the country with largest number of diabetic persons, followed by China. India holds nearly 15% of global diabetic burden with about 45 million people and it is going to increase to about 70 million by year 2025. As per the ICMR India diabetic study, the India had 62.4 million people with Diabetes in 2011. About 5-9% of nation's health budget is spent on treatment and prevention of Diabetes. According to the recent surveys conducted and the WHO report, the Diabetes involves 10-16% of urban and 5-8% of rural population in India. The greater burden of this disease is felt by low and middle income groups of countries. The most cause of concern is that about 50% of diabetics remain undiagnosed and about 30-35% of IGT(impaired glucose tolerance) go on to develop diabetes. In India there are very scanty data on the level of awareness of people and prevalence of this disease to plan and execute public health programme. With this view in mind this study has been conducted in the Tertiary Medical Centre of Mahatma Gandhi University of Medical Science and Technology which is located in outskirts of Jaipur city representing a larger proportion of rural population of several villages from all around in addition to that from urban areas.

II. Materials And Methods

Approval of the institutional ethical committee was obtained prior to study commencement. Persons in the age group of 20 years and above attending the Medical OPD were included in this study. The modality of study was briefly explained to all participants during the study period from December 2014 to February 2015. Total number of 440(M242 + F198) individuals were included in study. Only those participants who agreed to

participate(except psychiatric cases who could not respond to questionnaire) were included. A well structured questionnaire was prepared and was made to understand in the local language to them and they were assessed in detail about the knowledge of Diabetes. The capillary blood screening was done in all persons to find out diabetic cases among them. All cases who were already diabetic and fasting blood sugar > 126 gm% and PP > 220 gm% were included in study. The questionnaire projected to participate contained the series of questions regarding their demographic characteristics and awareness of diabetes highlighting general idea of disease, causes, various complications, management and prevention. The data were collected and analysed.

III. Results

Total 440 cases were included in the study(rural 277 and urban 163). Out of them 396(90%) were non diabetic and 44(10%) were found to be diabetic. Total number of male were 242(rural 128 + urban 114) and females were 198(rural 149 and urban 49). The percentage of diabetics in rural area was 5.05%(total 14 cases), both males and females included while in persons from urban area there were total 30 diabetic cases with prevalence of 18.40%. In female population the diabetics in rural and urban areas were 1.34% and 12.24% respectively while in males it was 9.38% in rural and 21.05% in urban areas.

Educational status - In non diabetic group in rural area the 60(22.81%) were illiterate, 160(60.83%) were educated up to high schooling and 43(16.34%) were up to university level while in urban areas total 10(7.51%) were illiterate, 80(60.15%) had done high schooling and 43(32.33%) went up to university level. While in diabetic group in rural areas total 4(28.57%) were illiterate, 7(50%) were up to high schooling and 3(21.42%) were up to university level and in urban sector 4(13.33%) were illiterate, 16(53.33%) up to high schooling and 10(33.33%) up to university level.

Occupation – In non diabetic group 79 were unskilled, 58(73.42%) from rural areas and 21(26.58%) from urban; 170 were skilled, 95(55.88%) from rural and 75(44.12%) from urban and 147 were house makers, 100(74.83%) from rural and 37(25.17%) from urban. While in diabetic group the unskilled persons were 4(57.14%) from rural and 3(42.86%) from urban; skilled persons were 8(26.67%) from rural and 22(73.33%) from urban while in house maker category there were 2(28.57%) from rural and 5(71.49%) from urban area. The prevalence of diabetes in illiterate in rural and urban area is 6.52% and 28.51%, in high schooling group it is 4.19% and 16.67% while in university group it is 6.52% and 18.87%. The prevalence of diabetes in 20-45 age group was 5.51% in rural and 17.89% in urban area. In group 46-65 years it was 3.93% and 21.95% while in > 65 age group it was 8.69% and 14.81%.

Body Mass Index - BMI in rural non diabetic was found to be normal(85.93%), overweight in 9.12%, obese in 4.56% and morbidly obese in 0.38% while in urban area it was 38.34%, 41.35%, 18.04% and 2.55% respectively. While in diabetic persons in rural area BMI was normal in 85.71%, overweight in 14.28%, obese and morbidly obese were nil. While in urban diabetics normal BMI was found in 73.33%, overweight in 23.33%, obese in 3.33% and morbidly obese nil.

Overall about 75% of non diabetic population in urban area knew what is diabetes but in rural area only 17% were aware of it. However those who were diabetic the percentage of awareness was higher(90% and 50% respectively). In urban and rural population in non diabetic group 63.91% and 20.91% knew that diabetes is more in those consuming more sweets while in diabetic group the percentage of awareness was in 30% and 42.80%. About 54.14% of non diabetic group and 6.67% of diabetic group from urban area had no knowledge of any risk factor of diabetes while the percentage was more in rural area(72.62% and 35.75%). The knowledge of complication of diabetes was very unsatisfactory in both urban and rural area, though it was worse in rural(Table .8...). The compliance of practices by diabetic patient for optimal diabetes control was also poor.(Table7...)

IV. Conclusion

In our study report on awareness and knowledge of diabetes in representative sample from rural and urban areas, the following are the significant findings:-

1. Overall about 75% of non diabetic population in urban area knew what is diabetes but in rural area only about 17% were aware of it. However in diabetic group the percentage of awareness was higher(90% and 50% respectively.)
2. The percentage of diabetes was higher in males compared to that of females in both urban and rural area while the overall prevalence of diabetes was more in urban area than that of in rural area in both males as well as in females.
3. In all the age groups the educational status was better in urban than in rural area with better awareness of diabetes.
4. The percentage of awareness of risk factors of diabetes was alarmingly low in both rural and urban areas, although it was much better in rural area although awareness was better in diabetic group.

5. Sedentary lifestyle with higher BMI was more in urban people compared to that of rural. Awareness and concern of various complications of diabetes was better and on higher side in urban people than rural.
6. Even among diabetic patients only 84.10% were taking regular exercise and the compliance of reducing body weight, cessation of smoking, strict dietary modification was poor.
7. These findings indicate that there is a great need of imparting knowledge and spreading diabetic education measures to community and more intensely to diabetic subjects in early detection and prevention of diabetes and its complications. The Public health policies both in public and private sectors should be aimed at prevention and controlling diabetes at all states and national level.

Table 1

S.No	Variable	N(%) Non Diabetics		N(%) Diabetics	
		Rural(263)	Urban(133)	Rural(14)	Urban(30)
1.	Age				
	20-45yrs	120(45.62%)	78(58.64%)	7(50%)	17(56.66%)
	46-65yrs	122(46.38%)	32(24.06%)	5(35.72%)	9(30%)
	>65yrs	21(7.9%)	23(17.29%)	2(14.28%)	4(13.33%)
2.	Sex Distribution				
	Females	147	43	2	6
	Males	116	90	12	24
3.	Education				
	Illiterate	60(22.81%)	10(7.51%)	4(28.57%)	4(13.33%)
	High Schooling	160(60.83%)	80(60.15%)	7(50%)	16(53.33%)
	University	43(16.34%)	43(32.33%)	3(21.42%)	10(33.33%)
4.	Occupation				
	Unskilled	58(73.42%)	21(26.58%)	4(57.14%)	3(42.86%)
	Skilled	95(55.88%)	75(44.12%)	8(26.67%)	22(73.33%)
	House Maker	110(74.83%)	37(25.17%)	2(28.57%)	5(71.43%)
5.	Lifestyle				
	Non Sedentary	183(89.71%)	21(10.29%)	11(68.75%)	5(31.25%)
	Sedentary	80(41.67%)	112(58.33%)	3(10.71%)	25(89.29%)

Table 2 – PrevalanceOfDm

	Urban	Rural
Male	21.05%	9.38%
Female	12.24%	1.34%

Table 3 – PrevalanceOfDm

	Urban	Rural
Illeterate	28.57%	6.25%
Upto High School	16.67%	4.19%
University	18.87%	6.52%

Table 4 – PrevalanceOfDm

Age Group	Rural	Urban
20-45	5.51%	17.89%
46-65	3.93%	21.95%
>65	8.69%	14.81%

Bmi	Non Diabetics		Diabetics	
	Rural(263)	Urban(133)	Rural(14)	Urban(30)
Normal(<25)	226(85.93%	51(38.34%)	12(85.71%)	22(73.33%)
Overweight (25-30)	24(9.12%)	55(41.35%)	2(14.28%)	7(23.33%)
Obese(30-40)	12(4.56%)	24(18.04%)	0(0%)	1(3.33%)
Morbid Obese(>40)	1(0.38%)	3(2.55%)	0(0%)	0(0%)

Table 5 –BmiOfSurveyed Population

Table 6– Knowledge of DM and its risk factors among patients

Risk Factors	Non Diabetics		Diabetics	
	Urban(133)	Rural(263)	Urban(30)	Rural(14)
What Is Dm	100(75.19%)	46(17.49%)	27(90%)	7(50%)
High Bp	82(39.10%)	50(19.01%)	15(50%)	5(35.71%)
Overweight	81(60.90%)	26(9.89%)	4(13.33%)	3(21.43%)
Consuming Sweets	85(63.91%)	55(20.91%)	9(30%)	6(42.86%)
Family History	76(57.14%)	14(5.32%)	13(43.33%)	7(50%)
Lack Of Insulin In Body	47(35.34%)	13(4.94%)	7(23.33%)	3(21.43%)

Don't Know	72(54.14%)	191(72.62%)	2(6.67%)	5(35.71%)

Table 7 – Practices of Diabetic Patients –

Practices	Total number of Diabetic Patients(44)	
	Yes	No
Diabetic diet	25(56.82%)	19(43.18%)
Regular medication	37(84.10%)	7(15.90%)
Consult doctor regularly	10(22.72%)	34(77.27%)
Blood sugar monitoring at home/clinic	12(27.27%)	32(72.72%)
Regular exercise	8(18.18%)	36(81.81%)
To reduce body weight	7(15.91%)	37(84.09%)
Avoid smoking	17(38.64%)	27(61.36%)
Avoid alcohol	20(45.45%)	24(54.54%)
Avoid fasting	21(47.73%)	23(52.27%)
Taking frequent small meals	23(52.27%)	21(47.72%)
Maintain perfect hygiene of feet	26(59.10%)	18(40.90%)

Table 8– Knowledge of complications of DM

Complications	Non diabetics(396)		Diabetics(44)	
	Urban(133)	Rural(263)	Urban(30)	Rural(14)
Eye(loss of vision)	28(21.05%)	12(4.56%)	5(16.67%)	3(21.43%)
Heart failure	14(10.53%)	7(2.66%)	3(10%)	2(14.29%)
Kidney failure	9(6.77%)	3(1.14%)	4(13.33%)	1(7.14%)
Stroke	1(0.75%)	0(0%)	1(3.33%)	0(0%)
Diabetic foot	28(21.05%)	12(4.56%)	6(20%)	4(28.57%)
Diabetic Coma	10(7.52%)	2(0.76%)	5(16.67%)	2(14.29%)
Donot know	54(40.60%)	150(57.03%)	5(16.67%)	10(71.43%)

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