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A Study of Type-2 Diabetes Mellitus Among Adult Population

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Introduction: *Diabetes mellitus is one of the non-communicable diseases which have become a major health problem with the prevalence rapidly rising all over the globe at an alarming rate. India currently has 62.4 million people with Diabetes and 77.2 million people with pre-Diabetes. Diabetes mellitus is one of the leading causes of premature death worldwide along with other non-communicable diseases. Hence, my study is focused on indentifying the prevalence and risk factors for type 2 Diabetes mellitus in rural field practice area of Dr. Pinnamaneni Siddhartha Institute of Medical Sciences and Research Foundation, with the objectives 1. To know the prevalence of diabetes mellitus among adult population 2. To study the risk factors for diabetes mellitus among adult population.*
Methodology: *The present study was community based cross sectional study, a sample size of 700 subjects were taken up in the villages under the field practice area of the RHTC of the Pinnamaneni foundation.*
Results: *17% of the study participants know their diabetic status while 8% of them are unaware of their diabetic status. There was a statistical association between status of diabetes with BMI, age, family history, occupation and physical activity.*
Conclusion: *In the present study, the prevalence of diabetes observed is 25%, which is much more than the national average. Many of the modifiable risk factors are known to have a direct co-relation with the status of diabetes, for which awareness is to be created to the people.*

I. Introduction

Diabetes mellitus is one of the non-communicable diseases which have become a major health problem with the prevalence rapidly rising all over the globe at an alarming rate,[1] in both urban and rural areas, irrespective of socio-economic status. It was estimated in the year 2011, that 366 million,[2] people worldwide are diabetic of whom 80% (291 million) were living in the low and middle income countries. If these trends continue, by 2030[2] ,552 million people or one in ten individuals will have Diabetes, of whom 458 million people will reside in emerging economies compared with a mere 94 million in developed countries. India currently has 62.4 million people with Diabetes and 77.2 million people with pre-Diabetes.[3] Diabetes mellitus is one of the leading causes of premature death worldwide along with other non-communicable diseases, e.g. cardiovascular diseases (CVD) and cancer.[4]

Type 2 Diabetes is a serious disease with its increasing prevalence day by day. People with Diabetes require at least 2-3 times the health care resources of people who do not have Diabetes, and Diabetes care accounts for up to 15% of national healthcare budgets[5,6] of many developed countries. Earlier it was believed to be more confined to metropolitan cities but many studies done recently has shown the results of increasing prevalence in rural communities. Diabetes is an "iceberg" disease, remaining asymptomatic for years, being discovered only at a stage with preexisting complications.[7] Simple life style and dietary modifications with adequate drug therapy can prevent or at least delay the complications of the disease.

Hence, my study is focused on indentifying the prevalence and risk factors for type 2 Diabetes mellitus and type of treatment and adherence of known diabetics in rural field practice area of Dr. Pinnamaneni Siddhartha Institute of Medical Sciences and Research Foundation with the objectives, To know the prevalence of diabetes mellitus among adult population, to study the risk factors for diabetes mellitus among adult population.

II. Methodology

The present study was a community based cross sectional study, A sample size of 700 subjects were taken up in the villages under the field practise area of the RHTC of the Pinnamaneni foundation. It is located in Veleru village, of Bapulapadu mandal in Krishna district, Andhra Pradesh.
Inclusion criteria: People aged 18 years and above. Exclusion criteria: Pregnant women, People who are hospitalized, Very sick persons, People not present at the house at the time of visit.Pre tested & Semi structured

questionnaire was taken. A pilot study was done to pre test the questionnaire on 10% of the sample population i.e., on a sample of 70 subjects, to assess the feasibility & acceptability of the questionnaire, and necessary modifications are made where ever necessary. Data obtained from the pilot study is not included in the study population for analysis.Statistical Analysis: Data were entered in MS-Excel and analyzed in SPSS V17. Descriptive statistics were applied. Chi-square test was applied. P<0.05 was considered as statistically significant.

III. Results

In the present study, 28% of the study participants belong to the age group of 30-39 years followed by 20 % in the age group of 60-69 years. This is followed by 19 %, 16%, 11 % in the age groups 40-49, 50-59 and 70-79 years respectively. The least (3 %) of the study participants were in the age groups 20-29 and 80-89 years.

In the present study 45% of the study participants are male & 55 % of the study participants are female. Majority (51%) of the study participants were illiterates. Only 6% of the study subjects have completed the college education.

The majority (48%) of the study participants were " Labourers". While 35% belong to the occupation group - "others", the remaining 10% of them belong to the occupation group "Service". The occupation groups viz., "Unemployed", "Farmer" and "Business" constitute 5%, 1% and 1% respectively. Majority of the study subjects (97%) are "married", only a minority of 3 % of the subjects are unmarried.

Majority (42%) of the study participants belong to Socio-Economic Class IV followed by Class III (22%) , Class V (18%), Class II (12%) and Class I (6%) respectively. In the study, majority (75%)of the study participants are not having diabetes. 17% of the study participants know their diabetic status while 8% of them are unaware of their diabetic status.

In the present study 49% of the subjects were with the normal BMI**,** 25% were pre obese, 12% are obese, 14% are under weight. In the study it was observed that there is a statistical association between BMI & status of diabetes, which implies that with increasing BMI, chance of getting diabetes increases.

The relation between hypertension and status of diabetes was statistically significant in the study (p value <0.01). Of the 176 diabetics, HTN is seen co existent in 99 subjects which is 56.7%.

IV. Discussion

Age: In the present study majority of the study subjects belonged to the age group of 30-69 yrs, and a minority of 16% being < 30 yrs & >70 yrs. With mean age of the study participants being 49.54 years. Studies done by G. Vijaya Kumar et.al[8]., Nafisa C Vaz[9] et. al, Chow et. al[10]., Joshi et. al.,[11] showed almost similar mean age group.

Gender: Gender wise distribution of the population in the study is such that, 313 (44.7%) of the study subjects being male & 387 (55.3%) being female. In the similar study done by G. Vijaya Kumar et.al[8]., Nafisa C Vaz[9] et. al, Chow et. al[10] has shown the same results.

Educational status: Majority of the study subjects are illiterate (51%), where as 24.6 % are primary literates, 14.4 % being secondary literates , where as the participants with education more than higher secondary are only a minority of 10%. Study done by Rajesh[11] et. al., has shown the similar results.

Occupational status: 47.6% of the study participants are agricultural labourers, where as 34.6 % of the female participants, are mostly house wives. Only a minority of 5.3% of the study participants are unemployed. Joshi et.al[12]., Mohan et.al[13]., Chow et.al[10]., has shown the similar findings.

Socio economic status: In the present study 5.7 % of the study participants belonged to class I, 12.1% belonged to class II, 22.3 % belonged to class III, 42% belonged to class IV & 17.9 % belonged to class V. Rajesh[11] et. al., study has shown similar results.

Prevalence of diabetes: In the present study overall prevalence of 25.1 % is observed in the study participants, of them 17.1 % are known diabetics & 8% are unknown of their diabetic status. A positive family history is seen in 32.5% of the diabetics. Our study has shown a slightly higher prevalence than the studies done by G. Vijaya Kumar et. al.[8], Chow et. al.[10], Nafisa C Vaz[9] et.al, Rajesh[11] et. al., Menon VU et. al., [14] Sudha S Deo et.al., [15].

Gender wise prevalence of diabetes in the present study – it is 12.8% in males, & 12.2 % in females, which is in concordance with the study results of G. Vijaya Kumar et. al.[8], Chow et. al.[10] , Joshi et. al.,[12] .But the study done by Nafisa C Vaz et.al[9], the prevalence was more in females (12%) compared to males (8.4%).

Epidemiological & Risk factors for diabetes among adult population:

Non modifiable risk factors like Age & Family History have shown significant association with the status of diabetes. Similar findings are observed in the studies done by Ramachandran A et.al[16].,Joshi et. al.,[12] Mohan et al., [13] , Sudha S Deo et.al.,[15] In the present study , Gender did not show any predilection for diabetes. It is in concordance with the results of Sudha S deo [15] Ramachandran A et.al.,[16] Modifiable risk factors like

Cigarette Smoking is seen in 13.4% of the study population, where as a significant 36.1% of smokers were seen in diabetics. A positive association of smoking to diabetes was evident in various western country studies. (JULIE C WILL et. al., and RIMM EB et al.,)

Obesity was seen in 12.28% of the study population, where as a statistically significant association is seen between obesity and status of diabetes, with 30.2% of obese people are seen in diabetics. Misra et al., [17], Ramachandran A et. al.,[18, 16] , Sudha. S. Deo et.al., [15]

Hypertension is seen in 34.71 % of the study population same findings were observed in studies done by G. Vijaya Kumar et. al.[8], where as a statistically significant association is seen between status of the HTN & status of diabetes which is in concordance with the studies done by Rajesh[11] et. al., Sudha S Deo[16] et.al.,, diabetes & HTN is seen co existent in 99 (56.25%) persons of the 176 diabetics , but Chow et. al.[10] , found 46% of diabetics Joshi et. al.,[11] study showed 20.6%, lower than what has been observed in the study.

Other risk factors like occupation, educational status, low physical activity having a significant association with the status of diabetes. Mohan et al., [13], Joshi et.al.,[12] has also shown the same findings. But some risk factors like SES & alcohol consumption did not show any significant association with the status of diabetes, but this is aganist the finds observed in the studies done by Ramachandran A et.al[16].,Joshi et. al.,[12] Mohan et al.,[13] , Sudha S Deo et.al.,[15]

References

[1]. Huizinga MM, Rothman RL. Addressing the diabetes pandemic: A comprehensive approach. Indian J Med Res2006;124 : 481-4.
[2]. Unwin N, Whiting D, Guariguata L, Ghyoot G, Gan D, eds. Diabetes Atlas, 5th ed. Brussels: International Diabetes Federation, 2011:11–74.
[3]. Anjana RM, Pradeepa R, Deepa M, Datta M, Sudha V, Unnikrishnan R, et al. ICMR–INDIAB Collaborative Study Group: Prevalence of diabetes and prediabetes (impaired fasting glucose or/and impaired glucose tolerance) in rural and urban India: Phase 1 results of the Indian Council of Medical Research–INdiaDIABetes (INDIAB) study. Diabetologia 2011;54:3022–7.
[4]. World Health Organization [Internet]. Global Health Observatory - Noncommunicable diseases (NCD). 2012 [cited 2012 Feb 6]; Available from: http://www.who.int/gho/ncd/en/index.html.
[5]. American Diabetes Association. Economic Consequences of Diabetes Mellitus in the U.S. in 1997.Diabetes Care 1998;21:296-309.
[6]. International Diabetes Federation, World Health Organization. The Economics of Diabetes and Diabetes Care. Brussels: International Diabetes Federation, 1996.
[7]. American Diabetes Association. Standards of medical care in diabetes: 2009.Diabetes Care 2009;32(Suppl. 1):S13–S61.
[8]. G Vijaya Kumar, R Arun, VR Kutty, High Prevalence of type 2 DM & other metabolic disorders in rural central Kerala: JAPI-August 2009-Vol.57.
[9]. Nafisa C Vaz, AM Ferreira, MS Kulkarni. Prevalence of diabetes in rural Goa, India. Indian J Community Med. 2011 ,Oct-Dec ; 36(4):283-286.
[10]. Chow CK, Raju PK, Raju R, Reddy KS, Cardona M, Celermajer 52. DS, et al.The prevalence and management of diabetes in rural India. Diabetes Care 2006; 29 : 1717-8.
[11]. Rajesh Rajput, Meena Rajput, Jasminder Singh, Mohan Bairwa. Metabolic Syndrome and related disorders. December 2012, 10(6):443-446. doi:10.1089/met.2012.0067
[12]. Shashank R Joshi, Banshi Saboo, Muruga Vadivale. Prevalence of diagnosed and undiagnosed diabetes & hypertension in India-Results from the screening India's Twin Epidemic(SITE) Study. Diabetes Technology & Therapeutics 2012; 14(11).
[13]. Mohan V, Gokulakrishnan K, Deepa R, Shanthirani CS, Datta M. Association of physical activity with components of metabolic syndrome and coronary artery disease- The Chennai Urban Population Study (CUPS No.15). Diabet Med.2005;22:1206-11.
[14]. Menon VU, Kumar KV, Gilchrist A, Sugathan TN, Sundaram 53. KR, Nair V, Kumar H. Prevalence of known and undetected diabetes and associated risk factors in central Kerala - ADEPS. Diabetes Res Clin Pract 2006; 74 : 289-94.
[15]. Sudha S Deo,Avinash Zantye, Rajashree Mokal, Shilpa Mithbankar, Sujata Rane, Kalpana Thakur. To identify the risk factors for high prevalence of diabetes and impaired glucose tolerance in Indian rural population. Int. J. Diab. Dev. Ctries; March 2006; 26(1).
[16]. Ramachandran A , Snehalatha C, Ananth Samith Shetty, Arun Nanditha. Trends in prevalence of diabetes in Asian countries. Trends in prevalence of diabetes in Asian countries. World J. Diabetes 2012, June,3(6): 110-117.
[17]. Misra A, Pandey RM, Rama Devi J, Sharma R, Vikram 26. NK, Khanna N. High prevalence of diabetes, obesity and dyslipidaemia in urban slum population in northern India. Int J Obes 2001; 25 : 1-8.
[18]. Ramachandran A, Mary S, Sathish CK.Population based study of quality of diabetes care in southern India. J Assoc Physicians India. Jul 2008; 56:513-516.