

Diabetes mellitus in perimenopausal with family history of women in an urban slum of Mumbai

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Abstract

This study has been undertaken to find association between family history of diabetes mellitus and diabetes mellitus in perimenopausal women in an urban slum of Mumbai. The cross-sectional community-based descriptive epidemiological study was conducted in slum area during the period of January 2012 to June 2013. 50.8% diabetic subjects and 33.7% non-diabetic subjects gave positive family history. There was significant statistical association between family history of diabetes mellitus and diabetes mellitus among perimenopausal women in an urban slum.

Keyword: Diabetes mellitus, perimenopausal, family history.

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INTRODUCTION

Diabetes mellitus is an 'ice-berg' disease. Diabetic patients, if undiagnosed and inadequately treated, develop multiple chronic complications leading to irreversible disabilities and death. More than 90% of the cases of Diabetes mellitus are type 2 Diabetes mellitus.¹ India is currently experiencing an epidemic of diabetes mellitus.² Data available shows rising pattern in the prevalence of type 2 Diabetes mellitus in India both in urban as well as rural areas. The population in India has an increased susceptibility to Diabetes mellitus. Factors responsible for development of type 2 Diabetes mellitus are age, familial and genetic ethnicity, obesity, physical inactivity, diet, smoking, socioeconomic status, high blood pressure and high cholesterol, history of gestational diabetes. Early detection and appropriate treatment are the cornerstones for delaying the onset and progression of the diabetic

complications. It is therefore particularly important that recognition and management of multiple risk factors should be a primary goal in comprehensive preventive care. Studies suggest that Diabetes mellitus is no longer a disease of the affluent or rich man's disease. It is becoming a problem even among the middle income and poorer sections of the society. Studies also have shown that the poorer diabetic subjects are prone to complications as they have little access to quality health care. As per U. N. Population Report (by Mid-year 2001), India's urban slum population is estimated as 158.42 million⁴. Such large population always goes ignored. It is therefore important that effort should be made for recognition of multiple risk factors to reduce diabetic complications. The decline in estrogen concentrations at the menopause has some adverse effects. The changes occurring at or after the menopause are increased insulin resistance, decreased insulin secretion, decreased insulin elimination and increased android fat distribution³. Few community studies have been conducted in the perimenopausal age group with varying definitions of perimenopausal age. For the present study, the perimenopausal age was considered to be 40-50 years⁵. Taking into consideration the above factors, a study has been undertaken to find association between family history of Diabetes mellitus and Diabetes mellitus among perimenopausal aged women in an urban slum.

MATERIALS AND METHODS

Administrative approvals:

The necessary approvals were obtained from the following authorities to carry out the study.

- The Dean of Parent Medical College.
- Ethics committee of Parent Medical College
- Professor and Head, Department of Community Medicine, Parent Medical College.
- In-Charge of the Urban Health Centre.

Study Area

The study was conducted at an urban slum Shivaji nagar which is a field practice area of Department of Community Medicine of Topiwala National Medical College, Mumbai This slum consists of 50 plots (1 to 42, 43, 43A, 44 to 49). Each plot is divided into two parts. Each part has 10 lines, these lines are numbered from A to K (except I) on left side and from L to U on right side. Each line has 9 houses numbered from 1 to 9. Total 180 houses are there in each plot. Total population of study area is approximately 84,783.

Study design

The present study is a cross-sectional community-based descriptive epidemiological study.

Duration of Study

The Study was conducted during the period of January 2012 to June 2013.

Calculating Sample Size

Total population of study area was 84,783. Female population between 40 to 50 years was 10.1%³. So, female population between 40 to 50 years in study area was 8,563. (Applying national demographic parameters)¹. Taking 5% of perimenopausal women of 40 to 50 years = 428.15. It was divided among 50 plots equally – $428.15/50 = 8.56 = 9$. So, 450 perimenopausal women were included in the study. From each plot, with the help of systematic random sampling method every 20th house was selected for the study, with a random start. All the females in age group 40 to 50 years in selected households were included for the study, till the sample size was met. Females who were not aware about their diabetic status were screened at Urban Health Centre for fasting blood glucose level and oral glucose tolerance test⁶ by semiautoanalyser. In the remaining females who had reported physician diagnosis of Diabetes mellitus, the diagnosis was further confirmed by checking for one of the evidence of disease like blood sugar report, medical record or prescription from physician or medicines.

Family History

Family history of Diabetes mellitus considered as positive if either or both parents or sibling of individuals are diagnosed to have Diabetes mellitus.

Statistics: Statistics used here is chi-square test.

RESULTS

Table 1: Association between Family history of Diabetes mellitus and Diabetes mellitus in the study subjects

Family history		Diabetic	Non-diabetic	Total
Yes	N	31	131	162
	%	50.8	33.7	36
No	N	30	258	288
	%	49.2	66.3	64
Total	N	61	389	450
	%	100	100	100

Chi square value=6.726 df=1 p value=0.009

Out of 450 study subjects 288 i.e. 64% subjects had family history of Diabetes mellitus and 162 i.e. 36 % subjects did not have family history of Diabetes mellitus. Out of 61 diabetic cases 30 (49.2%) had family history of Diabetes mellitus among parents and siblings and 31 (50.8%) cases did not have family history of Diabetes mellitus. Out of 389 nondiabetic subjects 258 (66.3%) had family history of Diabetes mellitus and 131 (33.7%) subjects did not have family history of Diabetes mellitus.

DISCUSSION

This study showed that out of 61 Diabetes mellitus cases, 31 (50.8%) had family history of Diabetes mellitus among parents and siblings and 30 (49.2%) cases did not have family history of Diabetes mellitus. There was highly significant association between history of Diabetes mellitus in parents and diabetes mellitus (p=0.009). It suggests the role of heredity in the causation of the disease. Similar results were obtained in the studies done by Shah SK *et al*⁷, Menon VU *et al*⁸, Ramachandran A *et al*⁹, Baijayanti Baur *et al*¹⁰ (p < 0.01), Anjana R.M. *et al*¹¹, Bener *et al*¹², Singh *et al*¹³ (p=0.000), Ahmad *et al*¹⁴ (p=0.0006), Bharati *et al*¹⁵.

CONCLUSION

There is significant statistical association between family history of diabetes mellitus and diabetes mellitus among perimenopausal women in an urban slum.

RECOMMENDATIONS

Preventive strategy for Diabetes mellitus should be focused on the first degree relatives of Diabetes mellitus patients as there was significant family aggregation in the present study.

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