



ISSN: 0975-833X

RESEARCH ARTICLE

ASSOCIATION BETWEEN HYPERTENSION AND DIABETES MELLITUS IN PERIMENOPAUSAL WOMEN IN AN URBAN SLUM OF MUMBAI

^{1,*}Dr. Kirti Vinayak Kinge and ²Dr. Amit Chandrakant Supe

¹Community Medicine IGGMC Nagpur, Add- Super D 15/3 BTPS Colony Deepnagar, Tal-Bhusawal, Jalgaon

²Orthopaedics MGIMS Sewagram, Wardha

ARTICLE INFO

Article History:

Received 24th September, 2015

Received in revised form

21st October, 2015

Accepted 17th November, 2015

Published online 30th December, 2015

ABSTRACT

This study has been undertaken to find association between hypertension 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. 29.5% diabetic subjects and 17% non-diabetic subjects had hypertension. There was significant statistical association between hypertension and diabetes mellitus among perimenopausal women in an urban slum.

Key words:

Hypertension,
Perimenopausal,
Epidemiological,
Statistical.

Copyright © 2015 Kirti Vinayak Kinge and Amit Chandrakant Supe. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Citation: Kirti Vinayak Kinge and Amit Chandrakant Supe, 2015. "Association between hypertension and diabetes mellitus in Perimenopausal women in an urban slum of Mumbai", *International Journal of Current Research*, 7, (12), 24278-24280.

INTRODUCTION

India is currently experiencing an epidemic of diabetes mellitus (Mohan, 2009). 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. 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 (Park, 2013). 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 million (Kakarala Madhuri, 2010). 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 distribution (Spencer *et al.*, 1997). 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 years (WHO, 2012). 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.

*Corresponding author: Dr. Kirti Vinayak Kinge
Community Medicine IGGMC Nagpur, Add- Super D 15/3 BTPS
Colony Deepnagar, Tal-Bhusawal, Jalgaon

- 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%.

So, female population between 40 to 50 years in study area was 8,563. (Applying national demographic parameters) (Park, 2013). 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 test 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.

Hypertension

Hypertension was defined as a self-reported history of physician diagnosis or subjects who were receiving drug treatment for hypertension or a systolic blood pressure of ≥ 140 mm Hg and/or diastolic blood pressure of ≥ 90 mm Hg. Out of 450 study subjects 84 i.e. 18.7% subjects had hypertension and 366 i.e. 81.3 % subjects did not have hypertension. Out of 61 diabetic cases 18 (29.5%) had hypertension and 43 (70.5%) cases did not have hypertension. Out of 389 nondiabetic

subjects 66 (17%) had hypertension and 323 (83%) subjects did not have hypertension. There was highly significant association between hypertension and Diabetes mellitus as p value was < 0.05

Table 1. Association between Hypertension and Diabetes mellitus in the study subjects

Hypertension	Diabetic	Nondiabetic	Total
Present	N 18 % 29.5	66 17	84 18.7
Absent	N 43 % 70.5	323 83	366 81.3
Total	N 61 % 100	389 100	450 100

Chi square value=5.463 df=1 p value=0.019

DISCUSSION

In this study out of 61 Diabetes mellitus cases 18 (29.5%) had hypertension and 43 (70.5%) cases did not have hypertension. There was significant association between Hypertension and Diabetes mellitus ($p=0.019$). Similar results were obtained in the studies done by Kutty *et al.*, 2000 Anjana *et al.*, 2011 Singh *et al.*, 2011 ($p=0.0285$), Megerssa *et al.*, 2013. However, Ahmad *et al.*, 2011 stated that hypertension was not significantly associated with Diabetes mellitus ($p=0.1192$). A characteristic feature of type 2 Diabetes mellitus is that it is often associated with other medical disorders including hypertension. It has been suggested it is a specific entity (the “metabolic syndromel or syndrome X) with insulin resistance being the primary defect.

Conclusion

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

Recommendation

Patients with hypertension need to be screened for diabetes mellitus and vice versa.

REFERENCES

- Park, K. 2013. Textbook of Preventive and Social Medicine. 22nd Edition. Jabalpur: M/s Banarsidas Bhanot Publishers; Feb 2013.p. 363,444.
- Mohan, V., R. Pradeepa, 2009. Epidemiology of Diabetes in Different Regions of India. Health administrator, 22 (1-2):1-18.
- Spencer, C. P., I. F. Godsland, J. C. Stevenson. 1997. Is there a menopausal metabolic syndrome? Gynaecological Endocrinology, Volume 11(5): 341-355.
- Kakarala Madhuri, Laura Rozek, Michele Cote, Samadhi Liyanage and Dean, E. 2010. Brenner. Breast cancer histology and receptor status characterization in Asian Indian and Pakistani women in the U.S.-a SEER analysis. BMC cancer, Volume 10(1): 191.
- WHO, 2012. Prevention and Control of Non-communicable Diseases: Guidelines for Primary health care in low resource settings, pg.no.20

- Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation and Treatment of High Blood Pressure (JNC 7) Express. 2003; 1–52. National Heart, Lung, and Blood Institute Bethesda, MD.
- Kutty, V. R., Soman, C. R., Joseph, A., Pisharody, R., Vijayakumar, K. 2000. Type 2 diabetes in southern Kerala. Variation in prevalence among geographic divisions within a region. *The Natl Med J. India*, 13: 287 – 92.
- Anjana, R. M., R. Pradeepa, M. Deepa, M. Datta, V. Sudha, R. Unnikrishnan, A. Bhansali *et al.* 2011. "Prevalence of diabetes and prediabetes (impaired fasting glucose and/or impaired glucose tolerance) in urban and rural India: Phase I results of the Indian Council of Medical Research–India DIABetes (ICMR–INDIAB) study." *Diabetologia*, 54.(12): 3022-3027.
- Singh, Jai Prakash, N. B. AVSaoji, S. P. Pitale, A. R. Deoke, and J. G. Nayse, 2011. "Epidemiological study of diabetes amongst geriatric population in an urban slum, Nagpur." *National Journal of Community Medicine*, 2(2): 204-8.
- Megerssa, Y. C., Gebre, M. W., Birru, S. K., Goshu, A. R., Tesfaye, D. Y. 2013. "Prevalence of Undiagnosed Diabetes Mellitus and its Risk Factors in Selected Institutions at Bishoftu Town, East Shoa, Ethiopia." *Journal of Diabetes & Metabolism* S12: 008. Available from: doi:10.4172/2155-6156.S12-008
- Ahmad, Javid, V. Masoodi, V. Ashraf, V. Rashid, V. Ahmad, Ashfaq Ahmad, and Sheikh Dawood, 2011. "Prevalence of Diabetes mellitus and its associated risk factors in age group of 20 years and above in Kashmir, India." *Al Ameen J Med Sci.*, 4: 38-44.
