Original article

Cross sectional study to assess the prevalence of Diabetes Mellitus among the elderly and their health seeking behaviour in an urban slum of Pune

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Abstract:

Introduction: The epidemiology of diabetes in elderly is not well understood. The purpose of this study was to estimate the incidence of diabetes mellitus among the elderly people and their health seeking behaviour.

Methods: A cross sectional study was carried out amongst 200 elderly (63 males and 137 females) during the period of Oct. 2009 to Aug. 2010. Urine analysis using Benedict’s solution was used to detect diabetes among the elderly. The objective data was assessed by calculating BMI and recording BP of the elderly and a questionnaire was used to assess the health seeking behaviour.

Results: The proportion of diabetes mellitus was detected in 59 (29.5%, with CI; 23.3-36.9) subjects out of 200. The male: female ratio in respect of diabetes mellitus was found to be 1:3.5. The overall prevalence rate found in this study was 295/1000 elderly population. There was a significant association found between obesity and diabetes (p<0.01) proving it to be the most significant risk factor for diabetes.

Conclusion: Prevalence of life style diseases & high morbidity among elderly needs strengthening of geriatric health care services in accordance with the common existing problems in the community.

Key words: Elderly, Diabetes, Health seeking behaviour

Introduction:

‘Diabetes Mellitus- An oncoming avalanche and the most challenging health problem of the 21st century’ is how the International Diabetes Foundation and the WHO describe the dramatic increase in Diabetes Mellitus that is occurring throughout the world today.¹

Keeping in view the alarming increase in the incidence and prevalence of diabetics in India, the International Journal of Diabetes has declared India as the “Diabetic Capital of the World”. The International Diabetes Federation estimates that the number of diabetic patients in India has doubled from 19 million to 40.9 million.²

Diabetes mellitus affects 10-20 percent of the elderly over the age of 65 years. Diabetes Mellitus prevalence increases with age. The National Health and Nutrition Examination Survey (NHANES II) demonstrated that in the population between 65 to 74 years old, almost 10 percent had previously diagnosed diabetes. The incidence of diabetes mellitus is approximately 2 per 1000 among those older than 45 years and increases for those individuals greater than 75 years old.³
Materials and Methods:
The present cross sectional study was carried out to determine the prevalence of diabetes mellitus among the elderly and their health seeking behaviour in urban slum. The study was done over a period of 11 months from Oct 2009 to Aug 2010. Multistage cluster sampling and systematic random sampling methods were used to select the samples. A total of 200 elderly above the age of 60 years and who were not a known case of diabetes mellitus were selected as samples for the study. The Diabetic Care Model and Health Belief Model were used as conceptual frameworks for the study. Urine analysis using Benedict’s solution was used to detect hyperglycemia among the elderly. The objective data was assessed by calculating BMI and recording BP of the elderly and a questionnaire was used to assess the health seeking behaviour. An interview schedule and an observation tool were used to collect data. Analysis and interpretation of data was done using statistical and inferential statistics.

Results:
In this study, Table 1 shows that the proportion of diabetes mellitus was detected in 59 subjects out of 200 i.e. 29.5%. About 46 (23%) females and 13(6.5%) males were detected to have diabetes i.e. a ratio of male to female was 1:3.5. The overall prevalence rate found in this study was 295/1000 elderly population (95% CI: 0.23, 0.35). The elderly between the age group of 60-69 years were found to be more susceptible to Diabetes, Obesity and Hypertension. Based on BMI, Obesity was found in 32 of the elderly having diabetes and there was a significant association found between obesity and diabetes (p<0.01) proving it to be the most significant risk factor for diabetes (as shown in Fig.1). The study also found a positive relation between age and hypertension (p<0.05) with 52 elderly having grade II hypertension, 47 having grade I and 30 having pre hypertension. The common co- morbidities found in the subjects was arthritis, eye problems, hearing deficits, traumatic injuries, Ischemic Heart Disease. Out of 200 subjects, 146 (73%) were found to utilize the services of the local practitioners and only 26 (13%) consulted specialist doctors for their ailments. 32.5 percent of the elderly preferred the services of private health care facilities because they felt that the government health centers were located very far and were not easily accessible. The factors of living alone (8%) and financial constraints (24%) were major barriers in appropriate health seeking behaviour.

Table 1: Gender wise distribution of elderly Diabetes

<table>
<thead>
<tr>
<th>Diabetes Mellitus</th>
<th>Gender (n=200)</th>
<th>Total</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male (%)</td>
<td>Females (%)</td>
<td></td>
</tr>
<tr>
<td>Detected</td>
<td>13 (6.5)</td>
<td>46 (23.0)</td>
<td>59 (29.5)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Undetected</td>
<td>50 (25.0)</td>
<td>91 (45.5)</td>
<td>141 (70.5)</td>
</tr>
<tr>
<td>Total</td>
<td>63 (31.5)</td>
<td>137 (68.5)</td>
<td>200 (100.0)</td>
</tr>
</tbody>
</table>
Fig 1: Age wise distribution of elderly diabetes

Discussion:
Diabetes mellitus is the commonest metabolic abnormality in the world. Type 2 diabetes is the commonest form of diabetes constituting 90 percent of the diabetic population in any country. The prevalence of Diabetes Mellitus increases with age in all populations. Type 2 Diabetes Mellitus is age related, affecting nearly 1 in 5 individuals over the age of 60 years. The prevalence of diabetes peaks at 60-69 years of age. In the present study, during the screening it was found that out of 200 elderly, 59 (29.5%) of the elderly had Diabetes (95% CI: 0.23, 0.35) and were asymptomatic for their disease as compared to 27.1 percent in a study done in Chandigarh. The prevalence of diabetes was approximately 55 percent in the 60-69 years age group, 21 percent in the 70-79 years age group and 13 percent in those older than 80 years. Maximum number of diabetic were found in the age group of 60 -69 years as compared to 50 (67.5%) in the age group 61-70 years in a study done in Chandigarh. Another study in Hong Kong found a prevalence of 15 percent of Diabetes Mellitus among the age group of 60-80 years.

Hypothesis testing: since there is no relationship between age and onset of Diabetes Mellitus, the null hypothesis is accepted but as the adult approaches the age of 60 years the risk of Diabetes increases but declines as the age progresses. The findings of the study also prove that the elderly living in the slums are unaware of their disease status. Undiagnosed Diabetes Mellitus (29.5%) in the elderly reflects the increasing life-style diseases in the community. However, the incidence of Diabetes Mellitus decreased with increase in age but the elderly were at risk due to presence of various comorbidities. The Body Mass Index (BMI) is a useful index of relative weight that can be applied to define obesity. Out of 59 persons detected to have diabetes, 22(11%) aged persons were overweight out of which 22 (11%) had diabetes and 35 (18%) had arth. Overweight was significantly associated
diabetes (\(\chi^2 = 10.8; \text{df}=1; \ P<0.01\)) and arthritis (\(\chi^2 = 5.24; \text{df}=1; \ P<0.05\)) which is comparable to a study in Orissa where overweight was also seen to be significantly associated with Diabetes mellitus (\(\chi^2 = 20.08; \text{df}=1, \ p<0.01\)) and joint related disorders (\(\chi^2 = 9.37, \text{df}=1, P<0.01\)).[7]

Health seeking behaviour depends on the perception of health and ill health, and there is a fine line between the normal health status of an older person suffering from an ill condition. In the present study it was found that out of all elderly seek some or other form of health care for their illness. Out of 200 elderly, 146 (73%) seek medical care from the local practitioners in the slum area and only 26(13%) seek proper consultation from the specialist doctors while 5 percent utilised over the counter drugs for their ailments and 3% consulted the indigenous doctors for their health care. A number of factors were reported in this study to influence health care seeking behaviour by the elderly. The most common constraint felt by the elderly (42%) was that the health care facility was located too far followed by financial constraints which was felt by (24%) of the elderly, (12%) of them thought that the illness is not severe. Living alone (8%) and not having enough time (8%) were other factors that influenced their health seeking behaviour.

Conclusion:
Health of the elderly is an important issue in today’s developing world. The main reason for this concern is the rapid increase in the population of this vulnerable group. A more transparent and accessible health care infrastructure in the urban settings of the country can bring down the rate of morbidity and mortality due to chronic illnesses which are preventable and treatable to a great extent if detected at the earliest. Diabetes is one such chronic illness which if detected timely can prevent morbidity and mortality among the elderly. 29.5 percent of the elderly were detected to have diabetes which means that there are elderly who are not aware of their disease status. Awareness about the disease, lifestyle modification and regular health checkup is all what is required for a healthy aging. The use of over the counter drugs was indicative of the inefficient health facilities in meeting the health needs of the elderly. Therefore, early identification of geriatric morbidities should be ensured through periodic screening and regular health checkups. Behavioural changes for weight reduction through dietary modification and regular exercise and avoidance of substance abuse will add to quality of geriatric health.

References:
