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Prevalence of Diabetes amongst the Khasi and Jaintia Population of Meghalaya

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Abstract

The number of people with diabetes worldwide has risen and is expected to reach epidemic proportion. With increasing prevalence predicted globally, a local study was felt necessary to assess the prevalence of diabetes. The study was conducted among selected subgroups of the Khasi and Jaintia in the State of Meghalaya. Data from hospital records, household surveys and diabetic camps of selected urban centres and district headquarters of the State were screened and analysed. The results from the random survey indicate that the average prevalence amongst the urban tribal Khasi and Jaintia population of the State was 9.89% and 12.5% respectively. Further, the prevalence was found to be higher for the age group above 40 years, constituting more than 80% of the total diabetic population. In the absence of any other epidemiological studies on diabetes in the State, this report serves to draw attention to the prevalence of diabetes in Meghalaya and the need for a wider population study.

Keywords: Diabetic, Meghalaya, Northeast, Prevalence, Tribal.

Introduction

Many of the patho-physiological conditions affecting the health status and lifespan of individuals have been ascribed to factors like food habits, lifestyle, and available health care including socio-economic parameters and environment. This is true for most tribal communities residing in Northeast India where changes are evident especially in urban centres. It has been

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generally observed that besides malaria, cancer, rickets, and complicated lifestyle diseases such as obesity and diabetes and their associated complications are on the rise in Meghalaya. Unfortunately, health studies conducted in the state[1-2] have been limited to certain priority diseases while statistics are not available on other health conditions including diabetes.

During the last 20 years, the total number of people with diabetes worldwide has risen and is projected to touch 366 million by 2030 from 171 million in 2000[3]. The diabetic population in India is also projected to increase from 32 to 80 million, earning the dubious distinction of being the diabetic capital of the world. The prevalence of diabetes for all age-groups worldwide was estimated to be 2.8% in 2000 and projected to be 4.4% by 2030[3]. In 1970s, the prevalence of diabetes among urban Indians was reported to be 1.2% and this has now risen to 12.1%[4,5]. Moreover, there is an equally large pool of individuals with impaired glucose tolerance (IGT), many of whom will develop Type 2 diabetes mellitus in the future.

As per King[6,7], diabetes causes more cases of blindness and visual impairments in adults than any other illness in the developed world. One million amputations each year are caused by diabetes. A diabetes sufferer is up to 40 times more likely to need a lower-limb amputation when compared to a person who does not have diabetes. Diabetes raises the sufferer's risk of developing cardiovascular diseases by two to four times and accounts for 5% to 10% of most nations' health budgets[8]. Cardiovascular diseases are predicted to be the number one cause of death globally. Diabetes mellitus leads to abnormalities in carbohydrate, protein and lipid metabolism and increases the risk of developing atherosclerotic arterial disease by 2 to 6 fold. Diabetes is now the fourth biggest cause of death worldwide. Half of all diabetes sufferers around the globe do not know they have it, while in some parts of the world as high as 80% of sufferers are ignorant[8].

Diabetes can affect nearly every organ system in the body. Good control of blood glucose levels significantly reduces the diabetes patients' risk of developing complications. Managing hypertension and elevated blood lipids is also crucial[3,9]. Early detection of diabetes and diabetes prevention is therefore strongly urged. The economic impact of diabetes is also considerable[4]. It affects health services, national productivity and more importantly individuals and families. Hospital in-patient costs for the treatment of complications are the largest single contributor to direct healthcare costs. In many countries, including India, a substantial proportion of healthcare costs are borne by the individual and the family[4-5]. One quarter of all the countries

in the world have not made any specific provision for diabetes care in their health plans. Diabetes mellitus is one of the main threats to human health in the 21st century.

In the context of the region in general and Meghalaya in particular, the problem is multidimensional. Some of the realities are poor health and communication infrastructure especially in the rural areas, inadequate number of healthcare professionals which include doctors, health workers, trained medical and supporting staff, poor economic conditions and in the context of diabetes, lack of awareness that diabetes mellitus leads to severe complications like blindness, kidney failure, cardio-vascular and neurological impairments and mortality. Modern life-saving drugs (including insulin) are beyond the reach of most rural population. Compounding the situation is the lack of statistical data. There is so far no organized epidemiological study done in the State on non-communicable diseases like diabetes. In the absence of statistical data, it becomes difficult to gauge the extent of the health status of the local community in terms of these afflictions and necessary preventive strategies cannot be formulated. Hence, this pilot study was undertaken to provide some indications of the prevalence of diabetes amongst two tribal populations of the State of Meghalaya. Hospital records from the Civil and KJP Mission hospitals of the three district headquarters of the State, i.e., Shillong, Jowai and Tura were collected and used. In addition, random household surveys and a one-day free medical camp for screening of diabetes in selected hospitals were carried out.

Methodology

Data was compiled and collated using (a) hospital records (b) Diabetes screening camps, and (c) door to door surveys. Hospital records spread over a period of four years (2003 to 2007) were scrutinised for diabetic cases as noted in the patients' record sheet. Relevant information such as age and sex where available were noted. Diabetes screening camps were conducted within the hospital premises with the assistance of hospital staff (nurses and medical examiners) for routine fasting blood sugar (FBS) and random blood sugar test and other symptoms associated with diabetes mellitus and its complications. Blood sugar test was done using a glucometer. All the biochemical parameters were recorded in the diabetes assessment sheet. Further, random household surveys in selected localities using questionnaires were carried out and the information recorded in separate record sheets. Parameters such as ailments/disease (common/chronic) including diabetes

mellitus (Type I and II) family history, age of onset of diabetes, history of polyuria, polydipsia, polyphagia, weight loss and wound healings were included. Doubtful patients were asked to attend scheduled screening camps for blood test.

Results

Results for each of the different approaches used (a, b and c mentioned above) are presented in Tables 1-4. Prevalence was calculated using the data generated from the random survey alone. Diabetic cases of hospital records and screening camps were indicated as apparent prevalence, as complete information were not available.

Table1. Hospital Records: 2003 - 2007

1	Dr. Norman Tunnel Hospital, Jowai	Category	Nos. of Diabetic Cases			Diabetes cases (%)
	Total records screened	Tribal	Total	Male	Female	
	3445	3100	179	69	110	5.7%
2	Dr. H. Gordon Robert Hospital, Shillong	Category	No of Diabetic Cases			Diabetes cases (%)
	Total records screened	Tribal	Total	Male	Female	
	30,083	29,106	2370	1041	1329	8.14 %
3	Civil Hospital Tura	Category	No of Diabetic Cases			Diabetes cases (%)
	Total records screened	Tribal	Total	Male	Female	
	5119	3583	134	57	77	3.73%

Table 2. Screening Camps

1	Dr H Gordon Robert Hospital, Shillong	Category	No of Diabetic Cases			Diabetes cases (%)
	Total cases	Tribal	Total	Male	Female	
	165	161	13	4	9	
2	Bansara Eye Centre, Shillong	Category	No of Diabetic Cases			24.9%
	Total cases	Tribal	Total	Male	Female	
	225	184	73	26	47	

Table 3. Surveys

	Shillong						Total average prevalence
1	Nos. Of respondents	Category	Diabetic Cases			Diabetes Prevalence (%)	11.2%
	Total records screened	Tribal	Total	Male	Female	9.89%	
	570	566	56	27	29		
2	Jowai	Category	Diabetic Cases			Diabetes Prevalence (%)	
	Total records screened	Tribal	Total	Male	Female		
	140	120	15	5	10	12.5%	

Table 4. Diabetes Prevalence (%) among different age-groups (data from random survey)

(A) Shillong

Age in years→	<20	20-40	40 - 60	>60
Male	-	7.4%	44%	44%
Female	-	10.3%	44.8%	44.8%

(B) Jowai

Age in years→	<20	20-40	40 - 60	>60
Male	-	20%	80%	-
Female	-	60%	40%	-

Discussion

Although the data from hospital records (Table1) indicate that the percentage of diabetes is less than 9, it should be pointed out that information documented in hospital records were scanty and many details were not available such as age, sex, symptoms, name of the patient's community etc. It was largely through surnames that the identity of the community to which a patient belonged was established. It was also apparent that diabetes prevalence varied from town to town (Tables 1 and 3). Screening camps yielded a higher percentage of diabetics, but this was expected, as patients suspected of having the disease were asked to attend the screening camps. The percentage of such people diagnosed with diabetes in the screening camps was 24, which is rather high. Although the figure is biased, it helps us to know the upper

ceiling of diabetes prevalence. The prevalence of diabetes among the Khasi and Jaintia tribal inhabitants in the urban areas of Meghalaya calculated on the basis of the data generated through the random household survey was 11.2%. The results from the random survey also indicated that the average prevalence amongst the urban tribal Khasi and Jaintia population of the State was 9.89% and 12.5% respectively (Table 3). Further, the prevalence was found to be higher for the age group above 40 years, constituting more than 80% of the total diabetic population.

Seemingly, the prevalence was relatively higher in female population (12.8%) compared to the male population (11.9%) although the study was not sex matched for all the study methods used. According to King *et al.*[6], in the year 1995, there were more women than men with diabetes for the world as a whole (73 vs 62 million) with a male/female ratio of 0.8. This phenomenon is pronounced in developed countries (31 million female vs 20 million male; male/female ratio of 0.6), but in the developing countries, there are equal number of men and women with diabetes (42 million in each case). In India, however, this trend was reversed with 8 million female vs 11 million male diabetics, putting the male/female ratio at 1.3[10,11]. Some authors have suggested greater female longevity and different lifestyle as plausible explanations for the higher number of female diabetics. However, with the present survey conducted in Meghalaya being only a pilot study, unambiguous conclusions cannot be drawn regarding the prevalence of diabetes in the male and female tribal populations. In developing countries, the largest number of people with diabetes is within the 45 to 64 year old age-group[6]. On the other hand, reports show that Indians develop diabetes at a very young age, at least 10-15 years earlier than the white population[11]. The higher number of people within the age group of 40-60 years (Table 4) suffering from diabetes in Meghalaya may be largely attributed to changes in lifestyle and food habits which were evident from the data recorded. In the review by Gupta[12], many cities and some states in India have a high prevalence of diabetes (Chennai 15.5%, Trivandrum 16.3%, Delhi 10.3%, Kerala 12.4%) [10, 13-15]. The national prevalence was estimated to be 12.1%[16]. Although the prevalence of diabetes in the tribal populations of Meghalaya was seemingly lower, a more accurate picture may require a comprehensive population study. Further, it may be pointed out that a majority of the people does not attend hospitals or primary health centres regularly till complications arise. Many of the health centres are not well equipped to carry out routine analysis and cost of such tests is another deterrent factor. Thus it emerges that more awareness programmes

on diabetes and its complications are required as a preventive measure and also to ensure glycemic control for established cases. Awareness will also minimize incidence which can be expected to rise. The recorded complications amongst diabetics were wide ranging, the most common being hypertension, retinopathy, nephropathy, neuropathy, pancreatitis, myalgia, dysentery and slow healing of wounds. Serious attempts should be made to create awareness as many of the respondents are not aware that diabetes leads to complications of micro and macro vascular nature. This can translate into a huge economic burden for any state/country and the diabetic individuals unless preventive steps are taken.

Given the changing lifestyle, diabetes in the state of Meghalaya can assume proportions that will affect the quality of life for a sizeable population of the state. The survey results serve to underscore and highlight the need for a comprehensive population and epidemiological study covering nutritional and non-communicable diseases.

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