ORIGINAL ARTICLE

Indications and Outcome of Admission of Diabetic Patients into The Medical Wards in a Nigerian Tertiary Hospital

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ABSTRACT

Background/Objective: Diabetes constitutes one of the common indications for admissions into the medical wards of many hospitals. This study aimed at evaluating the indications for medical admissions due to diabetes mellitus and the outcomes in University of Nigeria Teaching Hospital, **Patients and Method:** A retrospective study of medical admissions of diabetic patients from April 2005 to March 2007, was conducted. **Results:** The total number of medical admissions for the period was 2,043 patients, 274 (13.4%) of whom were diabetic patients. Of the 274 diabetic patients, 144 were males and 130 were females. Their ages ranged from 20 to 90 years (mean 55.4 ± 15.4 years). The indications for admission were chronic diabetic complications involving different body systems (of which renal system involvement was the commonest), poorly controlled diabetes, acute emergencies and foot ulcers. Outcome was good in the majority while a case fatality rate of 23.7% was recorded. **Conclusion:** Chronic complications of diabetes mellitus, mostly involving the renal system constituted the commonest indication for admission of patients into the medical wards of the University of Nigeria Teaching Hospital. It is important that factors responsible for the development of these complications be identified and tackled in order to reduce this burden.

Keywords:: Diabetes mellitus, admissions, Nigeria.

INTRODUCTION

Non-communicable diseases such as diabetes mellitus, cardiovascular diseases (especially ischaemic heart diseases and hypertension), stroke, cancer and chronic kidney and respiratory diseases have become the leading causes of mortality both in developed and developing nations of the world[1]. The rising prevalence of these diseases is thought to be due to adoption of western lifestyles and urbanization[2]. Globally, the prevalence of diabetes mellitus (DM) for all ages was about 2.8% as at 2000, and is estimated to rise to 4.4% by 2030[3]. According to data from International Diabetes Federation (IDF), the prevalence of DM ranged from 2.4% to 7.9% for those 20 – 79 years old; with average global prevalence of 5.1%[4]. In the United States of America, Mokdad

et al[5] showed that the prevalence of DM had increased by 33% from 4.9% in 1990 to 6.5% in 1998. In Nigeria, non-communicable diseases were responsible for 60.7% of admissions into the medical wards of the University of Nigeria Teaching Hospital, Enugu, South East, Nigeria, over a five-year period (1998 – 2003)[6]. Thus diabetes mellitus was the sixth leading cause of admissions in Enugu[6] while in a later publication by Osuafor et al[7], it assumed the leading cause of medical admissions at Nnewi, also in south east Nigeria. General medical and diabetes mellitus-related admissions and outcomes from different parts of Nigeria[8-15] have been reported with admission and mortality rates ranging from 0.3% to 1.5% and 3.4% to 53% respectively. This study aimed to examine the indications and the outcomes of admission of diabetic patients into the medical wards of the University of Nigeria Teaching Hospital (UNTH), Ituku Ozalla-Enugu.

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PATIENTS AND METHODS

This was a two-year retrospective review of all diabetic patients admitted into the medical wards of the University of Nigeria Teaching

Hospital (UNTH), Enugu from April 2005 to March 2007, after approval by the Ethics committee of the hospital. The hospital is a 700-bedded referral centre in the eastern part of Nigeria. The diabetes clinic of this hospital records an average weekly attendance of about 60 – 70 patients with about 10% registered as new patients.

Information regarding gender, age, indication for admission (diagnosis), point of admission and outcome of admission was collated from the ward admissions and discharge register of the medical wards.

Results are expressed as either mean values [standard deviation] or proportions and comparison (where applicable) was by student's t test or chi square analysis. Significance level was set at p = 0.05.

RESULTS

A total of 2,043 patients were admitted within the two-year period, with an average monthly admission rate of 81.7 (approximately 82) patients. Patients admitted with diabetes mellitus (DM) and its related complications were 274 (13.4%) patients; 144 (52.6%) were males and 130 (47.4%) were females. On the average, about 11 patients were admitted for DM and its related complications monthly. Five patients (1.8%) had type I diabetes while the rest (98.2%) had type 2 diabetes.

The mean age of the patients was 55.4 [±15.4] years. The age range was from 20 to 90 years with the age ranges of 51 – 60 years and 51 – 70 years recording the highest proportion of admissions among the males and females respectively. Overall, the age range of 51 – 60 years contributed 26.5% of the total admissions.

Complications involving the various organ systems of the body constituted the most frequent indication for admission (39.8%) followed by uncomplicated poorly controlled type 2 DM (22.2%), diabetic foot ulcers (16.8%) and hyperglycaemic emergencies (16.8%). Uncomplicated poorly controlled type 1 DM was the least frequent indication (Table 1). Indication for admission of the five patients with type 1 DM was uncomplicated poor glycaemic control while 61 (22.6%) patients among the type 2 diabetic subjects had similar indication. For hyperglycaemic emergencies, diabetic ketoacidosis (DKA) was commoner than hyperglycaemic hyperosmolar states (HHS).

Table 1: Indications for admission of diabetic patients into the medical wards

Indications	Frequency (n=274)	%
Poorly controlled type 1 DM	5	1.8
Poorly controlled type 2 DM	61	22.2
Diabetic foot ulcers	46	16.8
Other systemic DM complications	109	39.8
Acute metabolic emergencies		
DKA	31	11.3
HHS	15	5.5
Hypoglycaemia	7	2.6

(DM; diabetes mellitus, DKA; Diabetic Ketoacidosis, HHS; Hyperglycaemic hyperosmolar State).

Of the systemic complications which affected 109 (39.8%) patients, renal, cardiovascular and nervous systems were the most involved in 39.3%, 28.2% and 17.1% of the patients respectively (Fig.1).

Two hundred and twenty four (81.8%) patients were admitted from the accident & emergency unit while the rest (18.2%) were admitted from the out-patient clinics ($\chi^2(6) = 20.8$, $p = 0.002$). All diabetic emergencies with DKA, HHS and hypoglycaemia were admitted from the Accident & Emergency (A & E) unit. One hundred and eighty seven (68.2%) patients were discharged while 65 (23.7%) died. Outcome for 8 (2.9%) patients were not specified, and 14 (5.1%) patients were transferred out of the medical wards to other wards. Systemic complications and diabetic foot ulcers accounted for most of the case fatalities (39.5%) and transfers (57.1%) respectively.

Figure 1: Chronic complications of diabetes mellitus shown according to the body systems involved
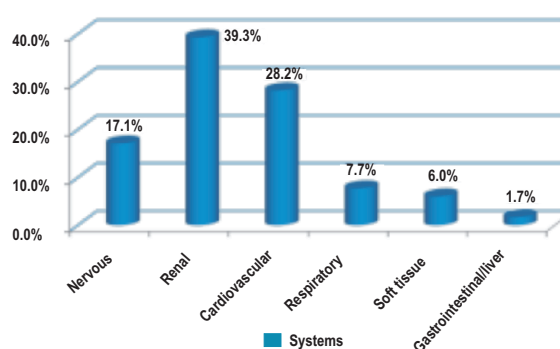
DISCUSSION

Diabetic admissions were responsible for 13.4% of the total admissions for the period under study which showed similarity with the findings from other centres in Nigeria[7]. It, however, showed an increasing trend when compared with the earlier observations in the same centre (8.8%) [6,16]. A general increase in overall admissions rate (of 34%) was observed in our centre by Ike et al[6,16]. The increase in the number of people suffering from non-communicable diseases have been linked to unhealthy ways of living and lifestyle such as consumption of excess calories and reduction in level of physical activities with the consequent development of obesity and insulin resistance[17]. Obesity has been clearly linked with diabetic patients from all the major ethnic regions of Nigeria[18-21].

In this study, excluding patients admitted for uncomplicated poor glycaemic control, about three-quarter of the admissions were due to complications of diabetes mellitus which involved different body systems. This is similar to the report from other centres in Nigeria and Tanzania where 71% of the patients had at least one complication[22]. These complications usually follow prolonged poor glycaemic control[23,26]. Poor health-seeking behaviours resulting in late presentation is a possible reason why majority of the patients presented with complications. Poor glycaemic control was the significant problem of the type 1 subjects in this study. Some of the reasons that may contribute to poor glycaemic control in type 1 diabetic patients include: poor understanding of the disease process by these children, poor parental and family support and non affordability as well as poor accessibility to insulin[23].

Acute metabolic emergencies (19.4%), especially hyperglycaemic emergencies (DKA), and diabetic foot ulcers (16.8%) were also common indications for admission in this study. These findings did not differ from observations in other centres in Nigeria [9,10,11,15]. Among the various systems affected by diabetes, renal involvement was a very common indication (39.3%). Diabetic nephropathy with progression to end stage renal disease is commoner in blacks and among diabetic patients. The reported prevalence of diabetic nephropathy in Africa ranges from 5.6% in Ethiopia to 46% in Kenya[24]

Involvement of the cardiovascular system may likely be due to the frequent co-existence of hypertension with diabetes (seen in nearly half of diabetic patients) obesity and dyslipidaemia which are common co-morbidities with diabetes mellitus[20,25-27]. The spectrum of specific cardiovascular diseases in people suffering from diabetes mellitus include coronary artery disease cardiomyopathy, cerebro-vascular diseases and peripheral vascular diseases[28].

The outcome of the admissions showed a high case fatality rate (23.7%) which was comparable to the outcome from Port Harcourt (17.2%)[10], Lagos (22.6%)[13], Enugu (24%)[6] but at variance with findings from Ekiti (3.4%)[9] and Ilorin (32.5%)[11]. Several factors relating to the patients (financial burden (considering the socioeconomic structure), health seeking behaviour patterns may have contributed to mortality in our patients[23]. Some patients were transferred to other wards probably because they needed the expertise of other specialties as good management of diabetes mellitus requires a multi-disciplinary approach. Systemic complications and diabetic foot ulcers accounted for most of the case fatalities, as also was the case in other centres.

In conclusion diabetic complications ranging from systemic complications (especially renal complications) to acute metabolic emergencies constituted the major indications for admission of diabetic patients. Case fatality is unacceptably high among our diabetic patients. Factors responsible for the development of these complications need to be evaluated in our patients with the aim to minimizing their development. This may greatly reduce the number of these cases and the high rates of mortality in these patients.

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