Original Research Paper

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Pattern of Diabetic Admissions in Wad-Medani Teaching Hospital in One Year Period

Medical Science

KEYWORDS :

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ABSTRACT

Diabetes mellitus is increasingly becoming a major chronic disease burden all over the world. This requires a shift in healthcare priorities and up-to-date data on the epidemiology and impact of diabetes in all regions of the world to help plan and prioritize health programs. Type 2 diabetes is increasingly becoming a major chronic disease health burden in Africa. The aim of this study was to assess the pattern of diabetic admission and outcome; in Wad-Medani Teaching Hospital in Sudan, in one year period (January–December 2014), mainly the presenting characteristics of diabetic patients (demographic and clinical), the main causes of admissions of diabetic patients and the outcome of these admissions. It was a retrospective study of medical records of patients with DM, admitted to internal medicine department in Wad-Medani Teaching Hospital in the period of January to December 2014. It was found, that; 9.6 % of the total admissions in medical wards in Wad-Medani teaching hospital during the study period were due to diabetes. The mean age of the diabetic patients was 57 years with SD of 15 years.55% were females and 45% were males. 62% of diabetic patients were from rural area and 38% from urban area. 62% of patients had type 2, diabetes. The commonest cause of admission was, uncontrolled hyperglycemia in 31% of patients, and 15% were admitted because of diabetic ketoacidosis. Cardiovascular diseases constituted 18% of diabetic admissions, and 13% of diabetic patients where admitted because of infections. The majority (85%) of these patients were improved. The findings of this study would be useful to determine the burden of diabetes on the health care system and in the planning of appropriate management strategies for diabetic patients, so we recommend, improving of the quality of primary care services and specialized health centres for diabetic patients all over the country, especially in rural areas. There should be health education programmes in the heath centres, referred clinics and in the media.

Introduction

Diabetes mellitus (DM), is a syndrome characterized by chronic hyperglycaemia**.** Prevalence of diabetes mellitus is increasing worldwide, with the major increases expected to occur in developing countries. It is estimated that the number of diabetic patients will grow from 135 million to 300 million by the year 2025. It has been observed that the pattern of hospital admissions can be used to determine the effectiveness of outpatient care of DM. (1)**.** Better outpatient care for diabetic patients was observed to decrease admission of diabetic patient to hospital in United Kingdom.(2).In 2011, about 14 million individuals were estimated to have diabetes in Africa, and this is expected to rise to 28 million by 2030. The highest increase is seen in urban areas. Changing patterns of diet, physical activity, and ageing populations are thought to be the major drivers of the increasing prevalence of diabetes in Africa. D.M prevalence ranged from 2.6% in rural Sudan to 20.0% in urban Egypt. Diabetes prevalence was significantly higher in urban areas than in rural areas. (3). Prevalence of Type 2 diabetes mellitus among Sudanese population, was found to be associated with high rates of complications and obesity. (4). According to International Diabetes Federation (IDF) atlas, the prevalence of diabetes in Sudan in the year 2015 was 15% in the age group50-79year. It is very likely that poor metabolic control contributes to the higher prevalence of chronic diabetes complications since hyperglycaemia is significantly related to complications. Patients with poor metabolic control are common. Improper glycemic control and hypertension could be the causes of retinopathy, neuropathy, nephropathy, cardiovascular diseases, and diabetic foot. (5).Diabetes in Sudan is the commonest cause of hospital admission and morbidity due to a non-communicable disease (7 and 10% respectively). (6). Morbidity and mortality

due to diabetes puts a heavy economic burden on health care system. (5). Having facilities for treatment of all aspects of diabetes, including diabetic complications, will help in providing better patient care and in minimizing hospital admission.

Objectives

The aim of this study was to assess the pattern and outcome of diabetic admissions in Wad-Medani Teaching Hospital in Sudan, in one year period (January–December 2014), mainly the presenting characteristics of diabetic patients (demographic and clinical) and to find out the main causes of admissions of diabetic patients in addition to the outcome of these admissions.

Methodology

Retrospective review of medical records of patients with DM, admitted to internal medicine department in Wad-Medani Teaching Hospital in the period of January to December 2014. Random selection of the diabetic records was conducted, a structured questionnaire consisting of data of interest domains was filled, and the data was analyzed using SPSS, Microsoft, windows 20.0.

Results

Total number of patients admitted to medical wards during the period of January -December 2014 was 5125 and the total number of diabetic patients was 495, equals to, 9.6%, of the total admissions. The sample size was 137 selected randomly. Mean age of the study population was 57 years, SD, 15 years ranged between 18years and 90 years. Female were 75 (55%) and males were 62 (45%). Regarding residence of patients, 86(62%) were from rural areas and 51 (38%) from urban area. Duration of diabetes ranged from weeks (newly discovered) to 40 years, mean was 7years and SD was 7.6. Patients with type 2 diabetes were 86 (62%). Patients on oral hypoglycaemic agents were 51 patients (37%), on insulin 75 (54%) and 9 % of patients were on diet control. Regarding cause of admission: 42 patients (31%) were admitted with uncontrolled hyperglycemia, 20 (15%) patients admitted with diabetic ketoacidosis (DKA), 25(18%), patients due to cardiovascular diseases, 19(13%), patients due to infectious disease,8 (6%)patients due to neurological disorders and 23 (17%) due to miscellaneous disorders e. g.(nephrological, haematological etc..). The outcome of diabetic patients, admissions was as follows: 115 (85%) improved and were discharged in good condition, 4 (2.9%) patients deteriorated, 1 (0.7%) patient died and the cause of his admission was lymphadenitis. 17 (12.9 %) patients; had unknown outcome.

N=137

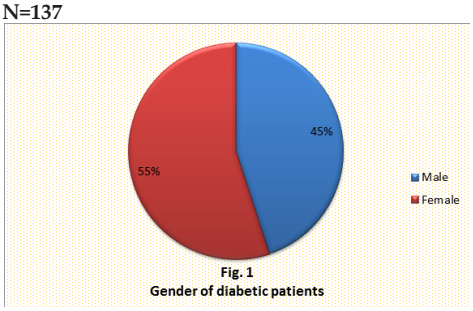

Fig. 1
Gender of diabetic patients

N=137

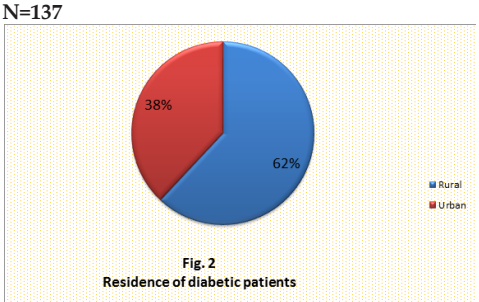

Fig. 2
Residence of diabetic patients

N=137

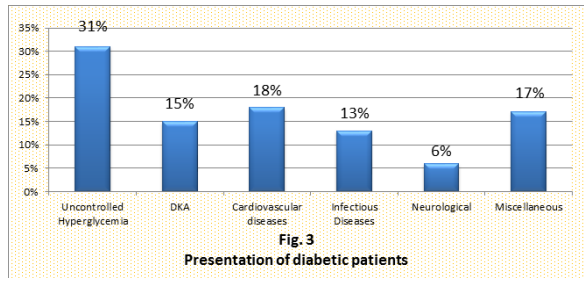

Fig. 3
Presentation of diabetic patients

N=137

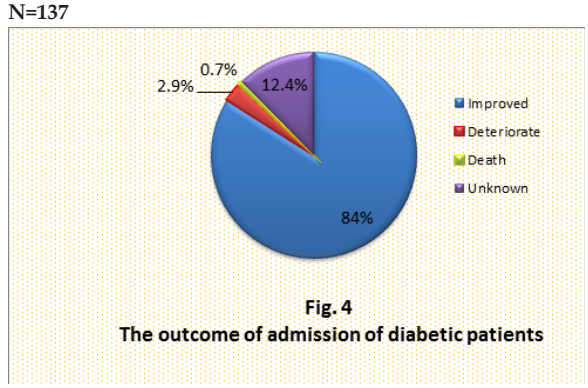

Fig. 4
The outcome of admission of diabetic patients

Discussion

The burden on the resources of society brought about by uncontrolled diabetes and its complications is enormous and costly and they often result in patients' admissions to the hospital. These hospitalizations have been found to be both adverse health events and markers for improper follow up and bad control of diabetes which may lead to serious complications. It is surprising that only a few reports have been published regarding the diabetes-related admissions and the tremendous costs of inpatient care to the patients of diabetes in Sudan. In this study, we have described the demographic data of diabetic patients, duration of diabetes, types of treatment, reasons for hospital admission, and outcome of hospitalized diabetic patients seen in Wad-Medani hospital, in Sudan over one year period (January- December 2014).

9.6 % of the total admissions in medical wards in Wad-Medani teaching hospital during the study period were due to diabetes. This proportion of diabetes-related admissions is greater than that reported from Tanzania (1%), South Africa (1.5%) and from rural medical center in Ekiti region, Nigeria (4.4%). But lesser than one study from an urban teaching hospital in Nigeria (15%). (1), but nearly similar to the study carried out by Awad M. A and Nada H, in …. , they found that diabetic admissions constituted 7% of hospital admissions. (6). The result of high hospital admission in this study; may be due to increase incidence of diabetes in Gezira area and lack proper primary care services in rural hospitals, so the majority of patients come to Wad-Medani hospital.

The mean age of the diabetic patients was 57 years with SD of 15 years.55% were females and 45% were males. This was unlike the study which was conducted by Adem, A, et al, in Tikur Anbessa and St. Paul's University Teaching Hospital, Addis Ababa, Ethiopia in 2011, to investigate the trend of diabetic admissions, where they found that, the majority of study population were males(51.7%). (7).

62% of diabetic patients were from rural area and 38%

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from urban area, this may be due to the fact that, most patients from urban areas, especially from Wad-Medani city, have follow in the primary health care centres which are scattered all over Wad-Medani city, or follow up in Aboagalla diabetic centre, the only specialized diabetic centre in Gezira state. 62% of patients had type 2, diabetes. The commonest cause of admission was, uncontrolled hyperglycemia in 31% of patients, and 15% were admitted because of diabetic ketoacidosis, this means that nearly half of the patients (46%), were admitted because of causes related directly to diabetes, either uncontrolled diabetes or had acute metabolic complication like diabetic ketoacidosis, this is an indicator to the lack of primary care services for patients with non communicable diseases, in addition to lack of health education for such patients. Cardiovascular diseases constituted 18% of diabetic admissions, and 13% of diabetic patients where admitted because of infections. In one study in Sudan, about 45% of the patients had poor control and that this was mainly due to non-compliance with diet, drugs and lack of education. Most patients were unaware of their complications and a high percentage of patients with severe complications were never seen by a specialist before.(4).The results of this study were unlike the results of the study which was carried out by Ajayi EA , Ajayi AO, to examine diabetes-related admissions to medical wards of a federal medical center in Ekiti, Nigeria, where they found, the commonest cause of admission of diabetic patients was diabetic foot ulcer, (37.29%) , while uncontrolled hyperglycemia (13.56%), and hyperglycemic emergencies (11.86%). (1).These results were also unlike the results of the study which was conducted by Adem, A, et al, in Tikur Anbessa and St. Paul's University Teaching Hospital, Addis Ababa, Ethiopia in 2011, to investigate the trend of diabetic admissions, where the commonest cause for admission was DKA, (71.1%), followed by diabetic patients who had infections (36.3%), and cardiovascular diseases (CVD) occurred in (18.4%). (7). In a study conducted by, Calderón-Larrañaga A et al (2012) in England, they found that better scheduled access to primary care and better glycaemic control were associated with lower admission rates to hospitals. (8).

Conclusion and recommendations

This study showed that, 9.6 % of the total admissions in medical wards were due to diabetes. The mean age of the diabetic patients was 57 years. The majority of diabetic patients were from rural area. The commonest cause of admission was, related directly to diabetes, either uncontrolled hyperglycaemia or acute metabolic complication of diabetes like DKA. Cardiovascular diseases constituted the second cause of diabetic admissions. Most of the patients improved .The findings of this study would be useful to determine the burden of diabetes on the health care system and in the planning of appropriate management strategies for diabetic patients, in Gezira state; so we recommend, improving of the quality of primary care services and specialized health centres for diabetic patients all over the country, especially in rural areas, and these centres, should be well equipped with trained heath personnel including diabetic nurse and dietitian. There should be health education programmes in the heath centres, referred clinics and in the media. The results of this study should pay the attention of health policy makers, to make plans to control hyperglycaemia and to prevent diabetic complications especially those related to cardiovascular diseases and further studies are recommended. Overall, less attention has been given to non-communicable diseases in Sudan by health planners as in other low- and middle- income countries.

References

1. Pattern and outcome of diabetic admissions at a federal medical center: a 5-year review, Ajayi EA[1], Ajayi AO. Ann Afr Med. 2009 Oct-Dec;8(4):271-5. doi: 10.4103/1596-3519.59584.
2. Organization of care for diabetic patients in general practice: Influence on hospital admission, A. Farmer, Angela Coulter,. British Journal of General Practice, 03/1990, 40(331) 56-58.
3. ✤**Prevalence and complications of diabetes mellitus in Northern Africa, a systematic review**.Manouk,Bos and Charles,Agyemang.,*BMC,Public,Heal th* 2013, **13**:387 doi:10.1186/1471-2458-13-387
4. **Low serum adiponectin concentrations are associated with insulin sensitivity independent of obesity in Sudanese subjects with type 2 diabetes mellitus.** Abdelgadir M[1], Karlsson AF, Berglund L, Berne C. Diabetol Metab Syndr. 2013 Mar 13;5(1):15. doi: 10.1186/1758-5996-5-15.
5. **A Study on the Prevalence of Diabetic Complications in Fasa Diabetes Clinic**. Roghaye Ghodsi1, Homeira HamayeliMeharbani2*, Abul-Qasim Avand3, Akhtar Bordbar4 and Soheila Ahmadzadeh, *Asian J. Med. Pharm. Res. 4(1): 68-72, 2014.*
6. **Diabetes mellitus in Sudan: the size of the problem and the possibilities of efficient care** ,Awad Mohamed Ahmed MBBS MD ,Nada Hassan Ahmed. Article first published online: 11 JAN 2002 ,DOI: 10.1002/pdi.292.
7. **Trend of diabetic admissions in Tikur Anbessa and St. Paul's University Teaching Hospitals from January 2005-December 2009, Addis Ababa, Ethiopia,** Adem A[1], Demis T, Feleke Y. Ethiop Med J. 2011 Jul;49(3):231-8.
8. **Trends in Hospital Admissions For Diabetes Complications 2004-2010** , Elizabeth Cecil, Michael Soljak, Research Assistants, DPCPH, Imperial College , London.