academicJournals

Vol. 5(6), pp. 286-289, June 2013
DOI: 10.5897/IJMMS09.376
ISSN 2006-9723 ©2013 Academic Journals
http://www.academicjournals.org/IJMMS

International Journal of Medicine and Medical Sciences

Full Length Research Paper

Profile and outcome of diabetic admissions at the University of Uyo Teaching Hospital, Uyo

B. C. Unadike[1]*, I. Essien[1], N. A. Akpan, E. J. Peters[2] and O. E. Essien[2]

[1]Department of Internal Medicine, University Of Uyo Teaching Hospital, Uyo, Akwa Ibom State, Nigeria.
[2]Department of Medicine, University of Calabar Teaching Hospital, Calabar, Nigeria.

Accepted 23 April, 2013

The aim of this study was to determine the morbidity and mortality pattern amongst patients with diabetes mellitus (DM) at the University of Uyo Teaching Hospital Uyo, Nigeria over four consecutive years (June 2004 to June 2008). This study was a retrospective study. Data was obtained from the records register in the medical wards of the hospital. These records registers included admission and discharge records as well as outcome of the individual cases. Data extracted included age, sex, indication for admission and outcome. A total of 407 patients with DM were admitted during the period under review. Uncontrolled DM was the commonest indication for admission accounting for 62.1% of the total admissions. Hyperglycaemic emergencies (diabetic ketoacidosis and hyperosmolar non-ketotic coma (Honk)) accounted for 18.7% of the total admissions. The overall mortality rate was 8.1%. HONK was the commonest cause of death accounting for 24.2% of the total deaths recorded. The mortality rate of diabetic ketoacidosis was 10.3%, while for HONK it was 30.3%. DM is an important cause of morbidity and mortality in Uyo. Adequate health/diabetic education needs to be given to diabetic patients to enable them take care of their illness to prevent the poor outcome associated with the disease.

Key words: Outcome, morbidity, mortality, diabetes, Uyo.

INTRODUCTION

Diabetes mellitus (DM) is an important cause of morbidity and premature mortality in patients who have the disease and accounts for at least 10% of total health care expenditure in most countries (Centres for Disease Control and Prevention 2005). People with diabetes are at increased risk of death from causes specific to diabetes like diabetic ketoacidosis (KDA), from cardiovascular disease like ischaemic heart disease and from other causes including infectious diseases (Geiss et al., 1995; McEwen et al., 2006).

Diabetes is a leading cause of morbidity and mortality, because of its role in the development of renal, cardiovascular, neuropathic and eye complications. Approximately 987,000 deaths in the year 2002, which was 1.7% of the total world mortality was attributed to diabetes by the World Health Organization (WHO 2003).

Cardiovascular causes have been reported as the greatest cause of mortality in these patients and diabetic nephropathy contributes significantly, as one in every three persons undergoing dialysis in the United States of America is a diabetic patient (Diallo et al., 1997).

This study analysed the outcome of diabetic admissions at the University of Uyo Teaching Hospital.

MATERIALS AND METHODS

This study was a retrospective study carried out in the University of Uyo Teaching Hospital. Medical records of patients admitted on account of diabetes during the period under review were analysed. Data was obtained from the records register in the medical wards

*Corresponding author. E-mail: bernadike@yahoo.com.

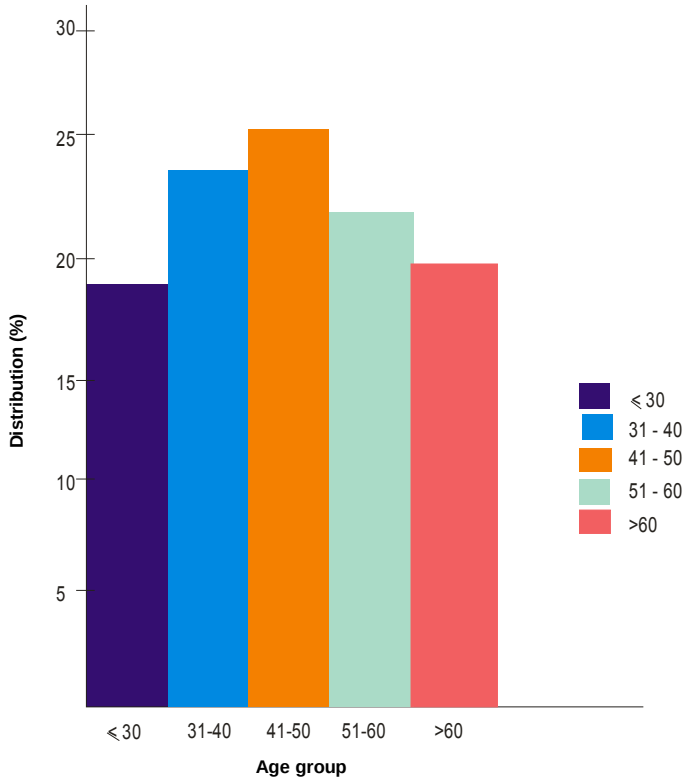

Figure 1. Age distribution of patients with diabetes mellitus.

Table 1. Mortality pattern of diabetic patients.

Cause of death	No	%
HONK	8	24.2
DKA	5	15.1
Uncontrolled DM	4	12.1
CVD	2	6.0
Hypertensive heart disease	3	9
Hypoglycaemia	3	9
DM Nephropathy	2	6.0
DM Foot Ulcer	3	9.0
Septicaemia	1	3.0
Pneumonia	1	3.0
Retroviral disease	1	3.0
Total	33	100

HONK: Hyperosmok Non ketotic Coma; DKA: diabetic keto Acidosis; CVD: cerebrovascular disease.

which included admission and discharge records.

Data collected included age, sex, indication for admission and outcome. The study was approved by the Ethical Committee of the University of Uyo Teaching Hospital. Descriptive statistics such as means and standard deviation was used to summarize qualitative variables while quantitative variables were summarized using percentages. Chi-square test was used to test the relationship between proportionate variables. Data analysis was done using Statistical Package for Social Sciences (SPSS) version 13. Results are presented in tabular form.

RESULTS

There was a total of 407 diabetic patients admitted during the period under review (188 females and 219 males). The mean age of the study subjects was 43.5±13 years. Majority of the patients were between 31 and 50 years of age (47.3%). Most patients were in the 41 to 50 year age range (24%) followed by the 31 to 40 years (23.3%), ≤ 30 years (18.6%), 51 to 60 (17.9%) and > 60 years (15.9%) (Figure 1). Uncontrolled DM accounted for 62.1% of the admissions (55.7% in males and 69% in females), while hyperglycaemic emergencies (KDA and hyperosmolar non-ketotic coma (HONK)) accounted for 18.75% of the total admissions (20.2% in females and 17.3% in males). The gender difference in admissions (219 males versus 188 females) is statistically significant ($P<0.05$)

The total number of deaths in this period was 33 (12 females and 21 males) giving a mortality rate of 8.1% overall (6.3% for females and 9.5% for males). The gender difference in diabetic deaths (21 males versus 12 females) is statistically signuificcant ($P<0.05$). The commonest cause of death was HONK accounting for 24.2% of all deaths. It was also the commonest cause of death amongst the male gender (28.5%), while DKA was the most common cause in females (33.3%).

The mortality for DKA in the study was 10.3% (16.6% for females and 4% for males), while the mortality for HONK was 30.3% (15.3% for females and 45.4% for males). The mortality for DM foot ulcer was 17.6%.

Out of the 407 patients admitted, 33 died, 364 were discharged and 10 took their discharge against medical advice. No change was identified in the pattern of diabetic morbidity and mortality over the years as uncontrolled DM was the commonest cause of morbidity and hyperglycaemic emergencies (DKA and HONK) were the commonest cause of mortality over the years in the period under review. The mortality pattern and outcome of the diabetic admissions are both shown in Tables 1 and 2, respectively.

DISCUSSION

DM is the sixth leading cause of death in the United States and age adjusted mortality in people living with diabetes is approximately twice that of people without diabetes (Anderson et al., 2001; Geiss et al., 1995). Studies from other countries have also confirmed this excess mortality attributable to diabetes (Roskinen et al., 1998; Weiderpass et al., 2001; de Marco et al., 1999). In Nigeria, non-communicable diseases, of which diabetes is one are a major cause of morbidity and mortality (Akinkugbe et al., 1997).

More males than females were admitted giving a male

Table 2. Outcome of diabetic admissions.

Event	Number	%
Death	33	8.1
Discharged	364	89.4
DAMA	10	2.4
Total	407	100

DAMA: Discharge against medical advice.

to female ratio of 1.1:1. The reason may be that males are more economically empowered than females and hence will seek treatment earlier than their female counterparts. This male preponderance is also reported amongst other non communicable diseases (Akinkugbe et al., 1997; Kadiri, 2005).

Uncontrolled DM accounted for 62.1% of the admissions. In our environment, most patients do not readily accept the fact that diabetes is a chronic illness and treatment is life long. Poor drug compliance, lack of financial wherewithal, and poor access to medical facilities may all compound this problem. Many studies have highlighted poor glycaemic control amongst persons with DM (Azab, 2001; Qari, 2005). Poor glycaemic control would necessitate admitting these patients for effective control of their hyperglycaemia.

Adequate health education should be given to patients on the long term implication of hyperglycemia usually resulting from non compliance with medications.

Hyperglycaemic emergencies (DKA and HONK) accounted for 18.7% of the total admission. This is also a reflection of poor-metabolic control in these patients, who subsequently present as diabetic emergencies. This reinforces the need for adequate health education of these patients.

HONK was the most common cause of death in the study population. HONK is usually a complication of type 2 DM accounting for about 10% of all hyperglycaemic emergencies (Rolfe et al., 1995). It however carries a high mortality since most of the patients are elderly and have other co-morbidities. The mortality in this study was 30.3%. In a similar study in South Africa, a much higher figure of 44% was reported (Rolfe et al., 1995). Early recognition and prompt treatment at peripheral clinics before subsequent referral will reduce this mortality seen.

DKA is a common diabetic emergency and carries with it, a relatively high mortality ranging from 25 to 33% in reported series from East Africa (Rwiza et al., 1986). The mortality rate in our series is 10.3%, which is still higher than the accepted mortality rate of 5 to 10%. Lack of access and high cost of insulin, delays in seeking medical attention, misdiagnosis and poor diabetic care are all contributory factors to this attendant mortality.

HONK was also the commonest cause of death in males, while DKA was the commonest cause in females in our study. In two studies from East Africa, most deaths were due to infections and hyperglycaemic emergencies (Castle and Wicks 1980; McLarty et al., 1990). Our findings agree with these reports.

Hyperglycaemic emergencies (HONK and DKA) contributed to 39.3% of the total deaths in our series. Most of these deaths would have been prevented. There are other similar other reports from within Nigeria and other places in Africa (Ogbera et al., 2002; Ahmed et al., 2000; Corrigan and Ahren 1968). The poor state of our health facilities generally is responsible for most of these preventable deaths. Provision of facilities for monitoring of blood glucose and electrolytes at the emergency centres will result in a reduction in the attendant mortality due to hyperglycaemic emergencies.

Diabetic foot ulcer is the leading cause of non-traumatic amputation and contributes significantly to diabetic morbidity and mortality (Ogbera and Ohwovoriole, 2003; Unachukwu et al., 2005). Nine percent of the total death in this study was attributed to it and most of these deaths however, can be reduced with good diabetic foot care services and education (Shaw and Boulton, 1999). Cerebrovascular disease (CVD) was responsible for 6% of the deaths. DM is a risk factor for CVD, and in co-existence with other risk factors like hypertension, dyslipidaemia, obesity and considering the fact that our patients are blacks significantly increase the risk of CVD. Efforts must be put in place to address each of these risk factors in order to reduce the risk of CVD and subsequent mortality in these patients (Olefsky, 2000).

With the increasing incidence and prevalence of DM, and the fact that diabetes is an important cause of chronic kidney disease, and with one out of every three patients on dialysis in the United States being a diabetic patient, the contribution of diabetic nephropathy cannot be under-estimated (WHO, 2003; Dirks and Robinson 2006). It was responsible for 6% of the total death in this study. However, in a resource poor setting like ours, with apparent lack of facilities for renal replacement therapy, and its high cost if available, our strategy should be primary prevention with emphasis on adequate control of DM, hypertension and other risk factors for renal disease.

Hypoglycaemia was a cause of death in 3% of the cases. Hypoglycemia is a serious complication of treatment in patients with diabetes. This is usually due to sulphonylurea or insulin therapy. In a South African study the major cause precipitating hypoglycaemia included a missed meal, alcohol use, gastro intestinal upset and inappropriate treatment (Gill and Huddle, 1993). In a Nigerian study, hypoglycaemia was responsible for 10.2% of the total deaths reported among diabetic patients (Unachukwu et al., 2006).

The limitation of this study was the fact that data on the diagnosis was obtained from the records register in the medical wards. Most patients may have developed other complications like hypoglycaemia which could have been responsible for their deaths, but this was not reflected in the ward register.

Conclusion

DM is a major cause of morbidity and mortality and contributes significantly to the burden of disease in Nigeria. Uncontrolled DM is the commonest cause of morbidity, while hyperglycaemic emergencies (DKA and HONK) are the commonest causes of death in patients with diabetes in Uyo.

RECOMMENDATION

Adequate health education is recommended for diabetic patients to reduce the morbidity and mortality associated with this disease. Facilities for adequate management of diabetes and its complications should also be provided for improved outcome. Medications used for its treatment should be made more affordable and available.

There is also need to ensure that the care and treatment of diabetes is covered by the National Health Insurance Scheme.

REFERENCES

Ahmed AM, Ahmed NH, Abdella ME (2000). Pattern of Hospital mortality among diabetic patients in Sudan. Practical Diabetes Int. 17:41-44.

Akinkugbe OO (1997). Non Communicable disease in Nigeria: Final report of a National Survey. Lagos; Federal Ministry of Health and Social services pp. 64-90.

Anderson RN, Minino AM, Hoyest DL, Rosenberg HM (2001). Comparability of cause of death between ICD – 9 and ICD -10; Preliminary estimates. Natl. Vital Stat. Rep. 49:1-32.

Azab A (2001). Glycaemic control among diabetic patients. Saudi Med. J. 22:407-9.

Castle WN, Wicks ACB (1980). Follow up of 93 Newly diagnosed African Diabetics for 6 years. Diabetologia 18:121-23.

Centres for Disease Control and Prevention. National Diabetes Fact Sheet. CNC, United States, 2005. Available at http://www.cdc.gov/pubs/general.htm

Corrigan CB, Ahren B (1968). Ten years' experience of a diabetes clinic in northern Tanzania. East Afr. Med. J. 45:89-90.

de Marco R, Locatelli, F, Zoppini G, Verlato G, Bonora E, Magge M (1999). Cause specific mortality in type 2 diabetes: The Verona Diabetes Study. Diabetes Care 22:756-761.

Diallo AD, Nochy D, Niamkey E, Yao Beda R (1997). Etiologic Aspects of Nephrotic Syndrome in Black African Adults in a Hospital Setting in Abidjan. Bulletin Socie'te' Pathologie Exotique 90:342–45.

Dirks J, Robinson S (2006). Preventing vascular diseases in the emerging world: a multidisciplinary approach, Diabetes Voice 51:45-46.

Geiss LS, Herman WH, Smith PJ (1995). Mortality among persons with non-insulin dependent diabetes. In: Harris MI, Cowie CC, Stern MP Boyko EJ, Reiber GE, Benneth. PH, (Eds) Diabetes in America. Bethesda, MD National Institutes of Health 2nd Ed.233-58.

Geiss LS, Herman WH, Smith PJ (1995). Mortality in non-Insulin dependent diabetes. In: Diabetes in America. Bennett PH, Boyko EJ, Cowrie CC, Harris M, Stern MP, Reiber GE, (Eds). Bethesda, MD, National Institutes of Health, National Institute of Diabetes and Digestive and Kidney Diseases 2nd ed. 233 – 258.

Gill GV, Huddle KR (1993). Hyperglycaemic Admission among Diabetic patients in Soweto, South Africa. Diabetic Med. 10:181-83.

Kadiri S (2005). Tackling cardiovascular disease in Africa. BMJ. 331:711-2.

McEwen LN, Kim C, Haan M, Ghosh P Lantz PM, Mcngione CM, Safford MM Marrero D, Thompson TJ, Herman WH (2006). Diabetes reporting as a cause of death. Results from the Translating Research into Action for Diabetes (TRIAD) study. Diabetes care 29:247–253.

McLarty DG, Kinabo L, Swai ABM (1990). Diabetes in Tropical Africa: A prospective study 1981 – 7, course and prognosis. Br. Med. J. 300:1107–10.

Ogbera AO, Ohwovoriole AE (2003). The economic cost of diabetic foot syndrome. Afr. J. Endocrinol. Metabol. 4:59-63.

Ogbera AO, Ohwovoriole AE, Soyebi O (2002). Case fatality among diabetic in-patients. J. Clin. Sci. 2:18-21.

Olefsky JM (2000). Prospects for research in Diabetes mellitus. J. Am. Med. Assoc. 285: 628-630.

Qari FA (2005). Glycaemic Control among diabetics at a University and Erfan private hospital. Pak. J. Med. Sci. 21:408-412.

Rolfe M, Ephraim GG, Lincoln DC, Huddle KRL (1995). Hyperglycaemic Non ketotic coma as a cause of emergency hyperglycaemic admissions in Baragwanath hospital. South Afr. Med. J. 85:173-76.

Roskinen SV, Reunnanen AR, Matelin TP, Valkonen T (1998). Mortality in a large population based cohorts of patients with drug-treated diabetes mellitus. Am. J. Public Health 88:765–770.

Rwiza HT, Swai ABM, McCarthy DG (1986). Failure to diagnose diabetes ketoacidosis in Tanzania. Diabetic Med. 3:181-83.

Shaw JE, Boulton AJM (1999). The pathogenesis of diabetic foot problems. Diabetes 4:560-588.

Unachukwu CN, Obunge OK, Odia OJ (2005). The Bacteriology of Diabetic Foot Ulceration in Port Harcourt, Nigeria. Nigeria J. Med. 14:173-176.

Unachukwu CN, Uchenna DI, Young E (2006). Mortality among diabetic in patients in Port Harcourt, Nigeria. Afr. J. Endocrinol. Metabol. 7:1-5.

Weiderpass E, Gridley G, Nyren O, Penetto G, Landstrom AS, Ekbom A (2001). Cause specific mortality, in a cohort of patients with diabetes mellitus: a population based study in Sweden. J. Clin. Epide 54. 802-890.

World Health Organization (2003). The World Health report 2003. Geneva. World Health Organization. 2003.