Is the Trend of Amputation in Nigeria Changing? A Review of 51 Consecutives Cases seen at Federal Medical Centre Ebute Metta, Lagos, Nigeria.

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SUMMARY

Introduction: Many previous studies from Nigeria have recognized trauma and complications of management of musculo-skeletal conditions by traditional bone setters (TBS) as the leading cause of amputation in Nigeria. However, of recent, a number of the studies are showing that diabetes gangrene which used to be an uncommon indication is becoming an important cause of extremity amputations. In view of the effect of amputation on the individual and the society and the success of well designed preventive programs, it is important that the indications for amputation be kept in constant view. The objective of this study is to draw attention to the increasing importance of diabetes gangrene as a leading cause of amputation in Nigeria.

Patient and Methods: This is a three-year prospective study (October 2006 – September 2009) using observer- administered questionnaires after consents were obtained from all patients or proxy during the period of study. All recruited patients were followed up and evaluated after surgery to determine the outcome. The following data were obtained and analyzed – age, sex, amputation type, indication and use of prosthesis.

Results: Fifty-one amputations were performed in fifty patients (37 males and 13 females). M.F = 2.8:1, age range 5 – 85 years, mean 47.6+/- S.D 20.7. Major limb amputations accounted for 35 cases (68.6 %) with diabetes gangrene accounting for 23 cases (45%) followed by Trauma accounting for 16 cases (31%). Wound infection was the commonest complication occurring in 16 cases (31.4%), Escherichia coli being the commonest causative organism. Only 6 patients (12%) eventually used prosthesis and the mortality in this series was 8 patients (16%).

Conclusion: Diabetic gangrene is the leading cause of amputation in this series. This is the first study in this environment to the best of the authors' knowledge where diabetes gangrene will emerge the leading indication. A number of other reports from Nigeria in the last few years have shown the progressive importance this condition is assuming as a leading cause of amputation.[1,3] This finding therefore calls for more studies in this area and a more proactive approach by caring physicians to limb lesions by their Diabetic patients.

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INTRODUCTION

Trauma and traditional bone setters' gangrene has remained the leading indications for amputation in Nigeria for years[1,2,3,4,] An analysis of indications for amputations in Nigeria over a 15 year period done by Thanni and Tade[2] showed regional variations with trauma being the leading cause in southern Nigeria while complications from traditional bone setting is the leading indication in Northern and Eastern Nigeria.

However, more recently some series are showing that Diabetic gangrene is now becoming a leading cause of amputation in our country in virtually all the regions[3].Previously,it used to be a rear-guard indication along with malignancies and infections[5,6]. A number of authors have drawn attention to the increasing importance of diabetic limb lesions in Nigeria[7] .This no doubt point to the possibility of a changing trend. This may not be surprising in view of several publications and enlightenment programs in the last decade on the problems of traditional bone setting,the challenges of amputations in the developing countries and the advantage of early hospital presentation in trauma cases[,8,9,10,11,12]. This changing trend may therefore be a result of the success of these efforts or an upsurge in the number of diabetes foot lesions cases as suggested by some authors.[7] This calls for more work in the epidemiology of amputations in Nigeria.

PATIENTS AND METHODS

This is a prospective study of all cases of extremity amputations from October 2006 – September 2009 performed at the Federal Medical Centre, Lagos, Nigeria. This hospital has a well developed orthopaedic and trauma unit that receives referral from within and outside Lagos.

After obtaining approval from the hospital's ethics committee and the consent of the patient or proxy, observer-administered questionnaire was applied to all patients undergoing any form of extremity amputation. The following information was subsequently derived from the questionnaires-age,sex, indication and type of amputation. The patients were followed up after surgery and evaluated for post-amputation complications, duration of hospital admission, use of Prosthesis; and satisfaction of patient with post-amputation life. Data obtained were analyzed and valid deductions made

RESULT

Fifty-one amputations were carried out in 50 patients. Thirty-seven of the patients (74%) were male and 13 patients (26%) were female with a male-female ratio of 2.8:1. The age range was from 5 – 85 years (mean = 47.6) and peak age was in the 51 – 60 year group. The other details are shown in figure1. Diabetes gangrene was responsible for 23 of the amputations (45.1%) followed by trauma, which accounted for 16 cases (31.4%). Further details are shown in figure 2. There were 16 amputations (31.4%) involving the upper limb and 35 amputations (68.6%) involving the lower limb. Below knee amputation, which accounted for 17 cases (33.3%) was the most common type of amputation. The details of the other levels of amputation are shown in figure 3. Following surgery, 8 patients (16%) died and they were patients with other complications of diabetes prior to surgery. 2 other patients (4%) developed psychosis and 16 cases (31.4%) had stump infection with E. coli. being the organism cultured in 50% of the stump wounds. 6 other cases (11.8%) had wound dehiscence and subsequently needed secondary suturing. Only 6 patients (12%) were using Prosthesis at the time of analysis and this was due mainly to financial reasons. The duration of hospital admission ranged from 2 days to 90 days with a mean of 26.6 days.

Twenty-nine patients (58%) were satisfied with the pre and post amputation counseling they got and 21 patients (42%) were dissatisfied. They felt it did not adequately prepare them for post amputation life. However, only 3 patients (6%) were satisfied with the quality of their post-amputation life and the cause of this dissatisfaction was reduced opportunity in 70% of the patients.

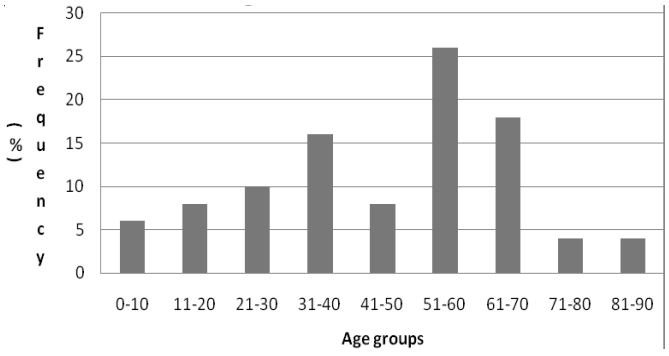

Figure 1: Age Distribution

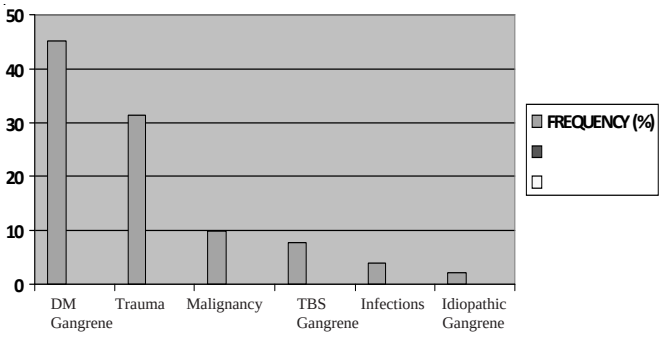

Figure 2: Indication for Amputation

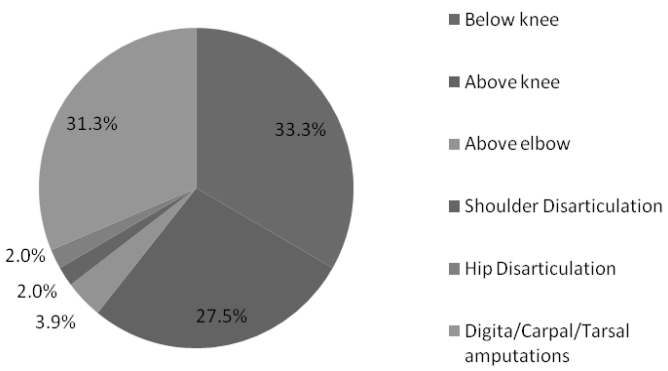

Figure 3: Type of Amputation

DISCUSSION

Amputation is a common procedure in most orthopaedic practice in Nigeria. In the past, trauma and complications of Traditional bone setting were the leading indications for amputations in Nigeria.[1,2,5,6] .Indeed, a review of the results of studies on amputations in Nigeria over a 15- year period done by Thanni and Tade showed that 34% of the amputations in Nigeria during that period were due to trauma, 23% due to complications of traditional bone setting and only 12.3% from diabetic gangrene[2]. The findings in some studies were in fact way more than this, with trauma accounting for 73.4% and 70.5% of the series from Ile-Ife and Port Harcourt respectively[5,6].

However, of recent, some studies are showing that diabetes gangrene is becoming a leading cause of amputation. Solagberu found that diabetes gangrene accounted for a majority of the amputations in female patients above thirty years of age and in the series by Ogunlade et al, it accounted for 26% of the studied population at Ibadan[1,3].Thus, pointing to an increasing importance of diabetes gangrene as a cause of amputation.
In this study, diabetes gangrene accounted for 45.1% of all amputations performed in our centre during the three year period, with trauma accounting for 31.4% in the series. Complications of traditional bone setting which was a leading indication in the past and infections are rear-guard indications in this series[8,9,10]. The study showed that complications of bone setting accounted for only 7.8% and infections accounted for 3.9%. This trend is similar to the findings by Solagberu and Ogunlade et al where infections accounted for only 8.6% and 13% of their respective series. This increasing incidence of amputations from diabetes gangrene has been attributed to increase in prevalence of uncontrolled DM complicated by neuropathy and vasculopathy[8].Other reasons may include the increasing awareness of the problems of traditional bone setting and the advantage of early presentation in hospital following injury thereby reducing the incidence of amputations due to those reasons.

The implications of this changing pattern is enormous for the health system and the society as diabetic foot is commoner among the low socio-economic group and people in their middle-age years with the outcome of treatment being disappointing[1].If not controlled, scarce resources that would otherwise be useful

in other areas of the health system may have to be diverted into tackling this problem. Furthermore the economic implications of a loss of limb are enormous on the affected individual and his family. As shown in this study, the most affected population are the people in the 6th and 7th decade of life. In our society with no social insurance and a poor pension system, many people in this age-group still actively fend for their family. It is therefore not a surprise that only 6% of the patients are satisfied with the quality of their post-amputation life with a majority-70% identifying reduced economic opportunity as the source of their dissatisfaction, also only 12% of them used prosthesis, again due mainly to financial reasons.

As stated earlier, the outcome of treatment is also fraught with many problems-increased post-operative complications, long hospital stay and high mortality from complications of diabetes as shown in this study. Indeed, 16% of the patients died following surgery from diabetes related complications and 31.4% of them had stump infection with 11.8% requiring secondary suturing of their wounds. This no doubt contributed to the long hospital stay of the patients. It is therefore important that an enlightenment program be initiated among all diabetics on foot care and efforts be stepped up to diagnose new cases.

CONCLUSION

The result of this study serves as reminder of the need for a constant evaluation of the pattern of diseases in our environment. More studies need to be done in other centers to validate this finding and the need by primary care physicians to be more aggressive in the education of diabetes patients on foot care cannot be over-emphasized.

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