

## **Aetiological Pattern of Amputations in an Emerging University Teaching Hospital, South-South Nigeria.**

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**Abstract:** *Amputation is greatly feared in developing countries, often due to its psycho-social effect on patients perception in public. Secondly cultural background and thirdly due to the economic burden on the family towards welfare and support ,due to scarce social and public welfare services. Despite these long term effect, amputation is still carried out for most absolute indication due to the presence of these etiological causes persisting in our environment. Considering these facts ,we deem it necessary and pertinent to review the common indications for surgically treated amputation and refashioning in our environment as well as the necessary epidemiology .*

*This was a retrospective review of 25 amputees with 26 surgical treated amputations over three and half years.*

*Result revealed that surgical amputation are most common in middle aged at rate of 48% ,male to female ratio was 2.57:1.Farmers were mostly involved followed by public/civil servants at 28% and 24% respectively . Most common aetio-pathologic causes are diabetes mellitus and hypertensive disease at 48%.Other causes were traffic accidents(Road/water) ,Assault(gun/cutlass), squamous cell carcinoma and occupational trauma. Young people were mostly involved the assault cases. Most amputations were carried out in the lower-limbs with below knee amputation being the most common followed by above knee amputation or refashioning. In Instances, involving the upper limb, cancer or assault was the most implicated. Elderly people who had amputation were mostly suffering from hypertensive vasculopathy and its gangrene often began from last digits of the foot. At  $p<0.05$  there was risk association between severe/fuminant sepsis and trado-medical intervention before presentation for orthodox treatment. There was 19% mortality which was mostly due to fuminant sepsis then metastatic carcinoma.*

*This study showed a pertinent need for a healthy diet and exercise ,when instituted ,would help to prune-down our increasing metabolic and hypertensive diseases which may lead to amputation.*

**Keywords:** *Diabetes, Amputation, Aetio-pathologic*

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### **I. Introduction**

Surgical amputation is associated with poor acceptance or approval for several reasons such as culture background, where amputees are not given decent burials and others such as psychosocial effect, increased economic burden on family potentiated by scarce social and public welfare services. Past - studies from Nigeria have reported trauma and complications resulting from mismanagement of musculo-skeletal conditions by traditional bone setters (TBS) as the leading cause of amputation in Nigeria<sup>1,2,3&4</sup>. An analysis of indications for amputations in Nigeria over a 15 year period done by Thanni and Tade<sup>2</sup> 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. Recent studies<sup>5</sup> revealed that diabetic gangrene has begun to be the most common indication for lower extremity amputations. Knowing the burden of amputation on individuals and society and the success of well designed preventive programs, it is important that the indications for amputation be kept as low as possible .According to current change in trends of indications for amputation there was need to review the amputations carried out in our facility in the past few years, and determine their epidemiology, risk factors and aetio-pathogenesis, and out-come of the procedure in patients in an emerging teaching hospital in south-south Nigeria.

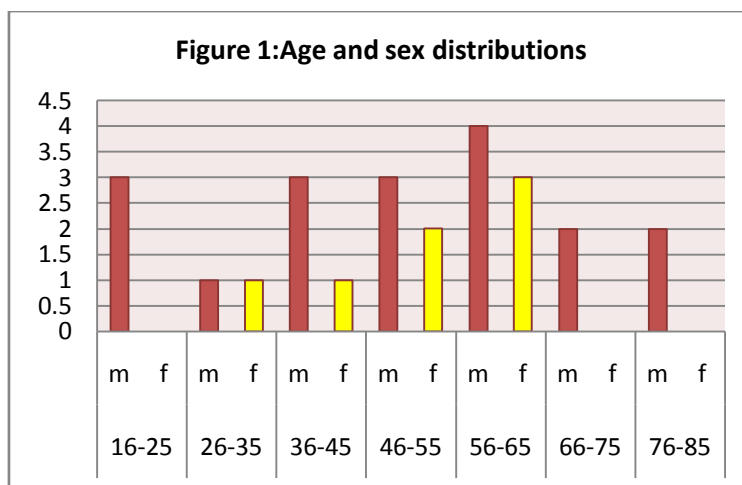
**II. Methodology :**

The Teaching hospital is located in a suburban area of the South-south region of Nigeria. The facility is new and growing . It evolved from an upgraded General hospital. She is currently one of the two serving tertiary hospital of the state. All reviewed amputations were carried out in these facility. It has an Orthopaedic and traumatology Unit.

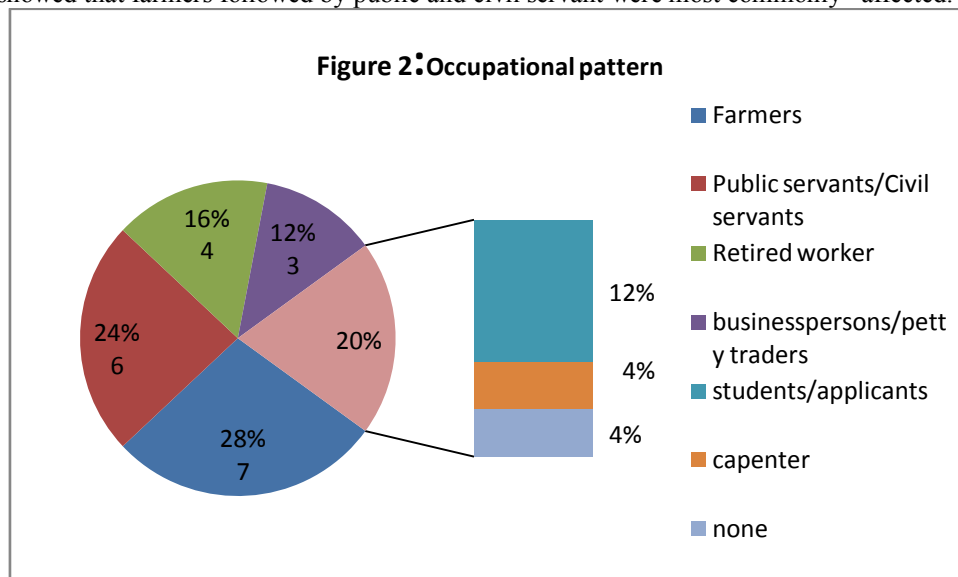
Amputation cases were sorted out from the theatre records .Thereafter the folder registration numbers were traced to the records department for the folders . Twenty six amputations were performed in 25 patients (18 males and 7 females) from a period of three and half years(May 2008 to October 2012).They were reviewed for their age and sex distribution, type of occupation ,level of amputation or refashioning , and underlying medical condition as well as their outcome. Data were tabulated and analysed , and deduction were drawn from the observations. These deductions were collaborated with other studies and conclusion were made.

**III. Results:**

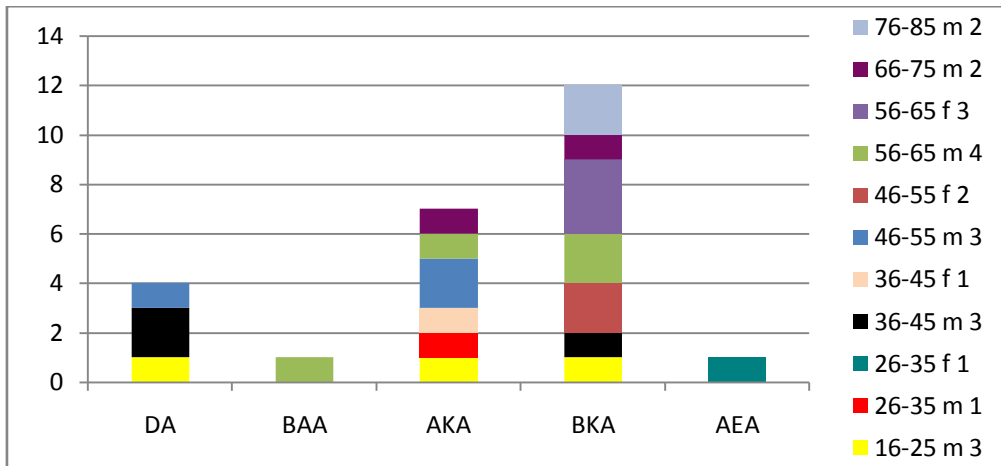
The chart shows age and sex distribution: 48 % of cases were of middle aged 46-65 years, while 72 % were males



The chart showed that farmers followed by public and civil servant were most commonly affected.

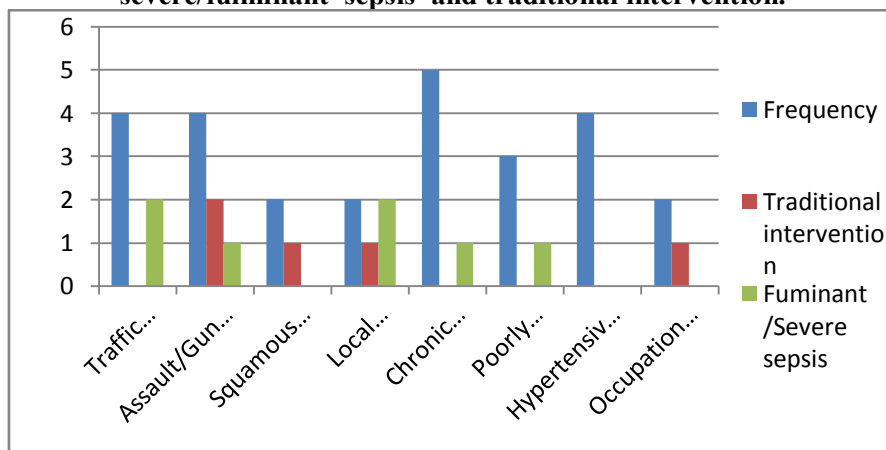


**Figure 3:Chart showing surgical levels of amputation with Age and sex Distribution:**

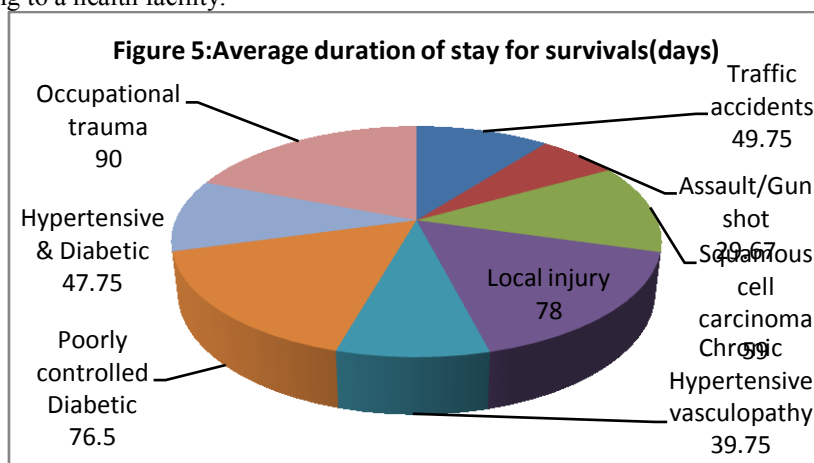


The chart above revealed that below knee amputation(BKA) was the commonest level of amputation and refashioning with most above 35 year of age. Other level of amputation were Above knee amputation(AKA), below ankle amputation(BAA) e.g ray amputation, digital amputation(DA) as well as above elbow amputation(AEA).

**Figure 4:Chart showing aetio-pathologic causes of amputation, complication with severe/fulminant sepsis and traditional intervention.**



The fourth chart revealed that metabolic disease and hypertensive vasculopathy were the most common causes for amputation however they were least complicated by severe sepsis, compared to others complicated by severe/fulminant sepsis due to Traditional intervention ( $p < 0.789$ ) with possible concoctions for wound dressing before presenting to a health facility.



The final chart showed average duration of stay in hospital for 20 patients that were discharged alive, however, it depends on length of time and associated morbidities before presentation such as severity of sepsis as well as time taken by patient and relative to give consent for amputation.

#### IV. Discussion:

Amputation still remains one of the therapeutic methods available to Orthopedic Surgeons, However, there has been strong competition by traditional practitioners to compete for musculoskeletal disorder where belief in their service is ardent. Past studies of amputation reported that trauma accounted for 73.4% and 70.5% of the series from Ile-Ife and Port Harcourt respectively<sup>3,4</sup>. Common causes of traumatic amputation involved motor cyclist accidents. Motor cyclist have been banned by law from most Nigerian city main roads. Our study revealed that Diabetics and Hypertensive vasculopathy are the commonest causes of amputation, which correspond with other recent reports<sup>5,6</sup> as trends evolve. More male were noted to be amputees 2.57:1(m:f) and mostly the middle age group was affected because that age group bear the highest burden of metabolic disease in Nigeria.

Associated indications such as severe or fulminant limb infections cannot be undermined. It had been the rear-guard indication for amputation among these reviews<sup>7,8&9</sup>.

The study showed that infection was statistically associated with trado-medical intervention before presentation to hospital and account for 27% of the cases before amputation. This trend was higher compared to the findings by Solagberu<sup>1</sup> and Ogunlade et al<sup>6</sup> where infections accounted for only 8.6% and 13% of their respective series.

This increasing incidence of amputations for diabetes gangrene has been attributed to increase in prevalence of uncontrolled DM complicated by neuropathy and vasculopathy<sup>7</sup>. It is more severe when associated with hypertension as shown in the study. Other reasons may include poor awareness of the problems from trado-medical practice such as sepsis and late presentation to 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 such as subsistence farmers and people in their middle-ages<sup>1</sup>. If public health measures are not in place, scarce resources that would otherwise be useful in other areas of the health system may be diverted to tackling this problem<sup>5</sup>. As shown in this study, the most affected in the population are those in the 5<sup>th</sup> and 6<sup>th</sup> decade of life as a contrast to 6<sup>th</sup> and 7<sup>th</sup> decade as reported by Dada et al<sup>5</sup>. In a poor pension system and fragile health insurance system, the economic burden<sup>5</sup> and implication is enormous both on affected individual and their family. Other associated burdens were the long hospital stay and high mortality from complicated cases as shown in this study. Indeed, 19% of the patients died from sepsis related complications possibly from trado-medical intervention. One of such was complicated with tetanus, the other had metastasis. Late presentation also play significant role in morbidity and mortality. There is no doubt that long hospital stay of the patients as was observed in the study<sup>fig5</sup>. It is therefore important that a preventive measure be put-in place, enlightenment program initiated among all diabetics on foot care and efforts are stepped up to diagnose new cases. Furthermore effort should be made to enlighten trado-medical practitioner concerning effect of their practice in contributing to morbidities of the patients.

#### V. 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 these findings and the need by primary care physicians to be more aggressive in the education of diabetic patients on foot care as well as regular check-up of blood pressure of hypertensive patients.

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