

Study of below knee amputations in a Tertiary Health Care Centre in India

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ABSTRACT:

Background Amputation word is derived from 'Ambi' meaning 'around' and 'Putare' meaning to prune or cut away, Amputation surgery has dated by to Hippocrates, It was a drastic measure undertaken to save life. Amputation was undertaken as a crude procedure in which limb was rapidly severed without anaesthesia, hemostasis was achieved by crushing the limb or by dipping it boiling oil. Needless to say the mortality was high due to blood loss, shock and sepsis. After the advent of asepsis, anesthesia and hemostasis in the mid nineteenth century, surgeons are focusing on tissue conservation.

Objective: This study has been performed to know the various causes their preoperative factors like age, gender, laterality of disease, and intra operative factors like duration of surgery, blood loss and post operative complications of below knee amputation surgery in Shri Chhatrapati Shivaji Maharaj Sarvopchar Rughalay, Solapur.

Methods: This was a retrospective descriptive study in patients operated for Below knee amputations in Shri Chhatrapati Shivaji Maharaj Sarvopchar Rughalay, Solapur from January 2021 to June 2022.

Result :

70 cases were studied in the duration of 18 months, 2 out of 70 required bilateral below knee amputations The mean age group that underwent amputations was 62.8 +/- 4 years, Female to male ratio found was 0.21/1, common causes for Below knee amputations are infection like necrotising fasciitis complicated by diabetes mellitus, crush injuries due to road traffic accidents, peripheral vascular diseases, Rare causes are burns, malignancies

Conclusion –

There is a high prevalence of amputations with soft tissue infections with diabetics in this study, It probably indicates ignorance to healthcare, It is of utmost importance to cultivate health seeking approach which will drastically reduce the limb loss and impairment in the population.

Key words :- *Below Knee Amputation(BKA), Peripheral Vascular Disease, Diabetic foot.*

Introduction Amputation word is derived from 'Ambi' meaning 'around' and 'Putare' meaning to prune or cut away, Amputation surgery has dated by to Hippocrates, It was a drastic measure undertaken to save life. Amputation was undertaken as a crude procedure in which limb was rapidly severed without anesthesia, hemostasis was achieved by crushing the limb or by dipping it boiling oil. Needless to say the mortality was high due to blood loss, shock and sepsis. After the advent of asepsis, anesthesia and hemostasis in the mid nineteenth century, surgeons are focusing on tissue conservation.

An accurate history and physical examination guarantee the most beneficial outcomes in a multidisciplinary approach to the preoperative evaluation of lower-limb amputation. Preoperative evaluation may not be possible for urgent procedures like amputations resulting from trauma or life-threatening infections, but in many cases, amputations can be postponed in order to carry out this procedure. The aim is to develop the best surgical and rehabilitation plans possible based on each patient's particular biopsychosocial profile. Premorbid functional status, cognitive and psychological history, vision, obesity, cardiopulmonary and renal status, education level, the presence of social support systems and home environment, and the status of the contralateral limb as well as the upper limbs should all be given special consideration in the history. More than 90% of patients will get primary healing with the right patient selection. Patients that practice a genuine probability of being able to walk with a prosthesis, as opposed to just 25% of individuals with above-knee amputation. The benefits of BKA come mostly from retaining the patient's own knee joint has several advantages. In today's era of advanced medical sciences the better understanding of disease, its causative factors, gender prevalence, stages and changing patterns of the clinical presentation of the patient demands high clinical suspicion and more refined methods for further management of the disease. In this study we retrospectively analyzed the patient records who underwent Below Knee amputation at our centre for varying conditions. We have analyzed different age groups, gender, ratio, etiologies, preponderance

Material and Methods:

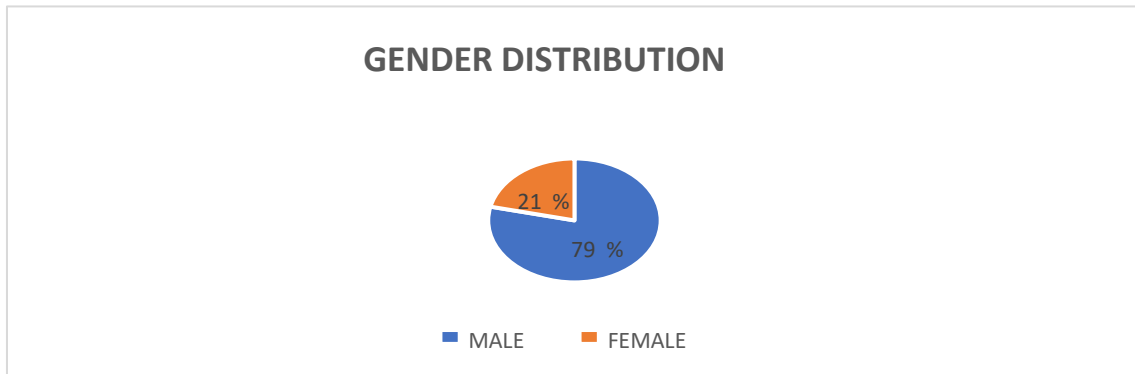
This was a retrospective descriptive study in patients operated for Below knee amputations in Shri Chhatrapati Shivaji Maharaj Sarvopchar Rughalay, Solapur from January 2021 to June 2022.

A total number of 70 cases of Below Knee Amputation(BKA) were studied from clinical records in . Data included age, gender, laterality of disease, and intra operative factors like duration of surgery, blood loss and post operative complications.

Result:

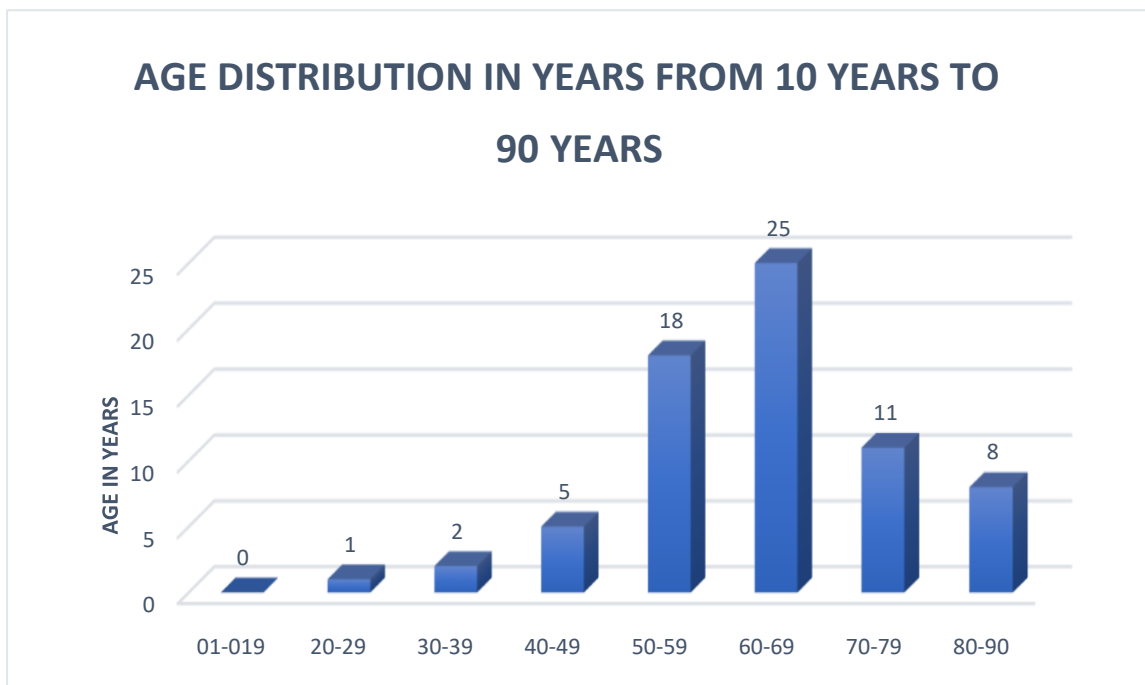
70 cases were studied in the duration of 18 months, 2 out of 70 required bilateral below knee amputations The mean age group that underwent amputations was 62.8 +/- 4 years, Female to male ratio found was 0.21/1 ,common causes for Below knee amputations are infection like necrotising fasciitis complicated by diabetes mellitus, crush injuries due to road traffic accidents, peripheral vascular diseases ,Rare causes are burns, malignancies. According this study age group observed with patients between age 60 to 70 had maximum Below Knee

Amputation(BKA) The predominant cause of Below Knee Amputation(BKA) in age group below 45 was due to trauma and above 45 was due to Infective causes. followed by 2 cases of vascular disease and 1 case of burns and only one



Below Knee Amputation(BKA) was due to a malignant cause. Out of 70 Below Knee Amputation(BKA) 55 were performed on male patients and 15 were performed on female patients male to female ratio was 1:0.21. Right sided Below Knee Amputation(BKA) was performed in 41% of cases and left sided Below Knee Amputation(BKA) was performed in 59% cases. Right to left laterality ratio was 1:1.42

During the study it was seen that out of mean operative time for was around 1.5 hours and post operative stay was on an average 10 days of hospital stay.



CAUSES OF BELOW KNEE AMPUTATIONS	
Causes of Below Knee Amputation	No. of patients
Diabetic foot ulcer	30
Necrotising Fasciitis	14
Crush injuries secondary to trauma	8
Peripheral Vascular Disease	16
Burns	1
Malignancy	1
Total	70

Discussion:

Below knee amputations were performed as the last resort when it was not possible to salvage the limb. Most common age group to undergo below knee amputation was 60-70 years of age which was in concordance to a study done by Vijay Viswanathan et al where the commonest age group affected is 7th decade while a higher one of 70 years was obtained at Korle-Bu hospital, Nigeria. In our study, there was male preponderance with female to male ratio 0.21/1. This is comparable to the results of Naeder's study in Ghana, which found a ratio of 1.4:1, but it differs from the ratios of 2.8:1 that Ofiaeli³ and Dada & Awoyomi⁷ found in Southeast Nigeria and Southwest Nigeria, respectively. In Pakistan, Jawaid et al.⁴ reported a 6.6:1 ratio. Although the trend is not very clear, a deeper examination of these research suggests that the male to female ratio tends to be lower in settings where diabetic foot problems are common. Disease and peripheral vascular are the major indications for amputation and higher where trauma. Type II diabetes mellitus was the cause for most of the foot complications which tend to manifest clinically in later years which explains the older peak age while trauma is commoner in younger active adults respectively.

In this study, the most common cause leading to BKA was diabetic foot (42%), Other causes were peripheral vascular diseases (22%), necrotising fasciitis (20%), trauma due to road traffic accidents (11.4%). Rare causes were Malignancies (0.01%) and burns (0.01%). In Western countries, texts on amputation explain that 97% of amputations were done for chronic vascular diseases. Oxidative stress caused by persistent hyperglycemia results in neuropathic and infectious consequences. By implementing preventive strategies such as intensive management and foot care education will be helpful in preventing newer problems and surgery in diabetic foot. Preventing new problems and surgery in diabetic feet can be accomplished by implementing preventive strategies such as intensive management and foot care education.

Conclusion:

There is a high prevalence of amputations with soft tissue infections with diabetics in this study, It probably indicates public negligence to healthcare, It is of utmost importance to cultivate health seeking approach which will drastically reduce the limb loss and impairment in the population.. Although in developed countries most of the below knee amputations are performed for Trauma and malignant diseases, infective conditions of the Limbs are the leading cause in the developing world. Screening and education programs are needed to decrease the rate of below knee amputations for preventable causes as due to diabetic Foot.

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