



# Clinical Study on Major Lower Limb Amputation

Bhaskar Reddy .K<sup>1</sup>, Saikiran .G<sup>2</sup>, Subramanyam .V.V<sup>3</sup>, Lokesh<sup>4</sup>PG Student<sup>1,2</sup>, Professor<sup>3</sup>, Assistant Professor<sup>4</sup>

Department of General Surgery

Narayana Medical College and Hospital, Nellore, India

**Abstract:****Introduction:**

Amputation is considered the last resort when limb salvage is impossible or when the limb is dead or dying, viable but non-functional or endangering the patient's life. In developed countries peripheral vascular disease ranks first as cause for amputation whereas trauma, infections, uncontrolled diabetes mellitus and malignancies are the leading cause for amputation in developing countries

**Aims and objectives:**

To study the age, sex distribution, various etiologies and anatomical site of major lower limb amputations

**Methods:**

This is a retrospective study conducted in Narayana medical college and hospital, Nellore between January 1<sup>st</sup> 2018 and December 31<sup>st</sup> 2018 of major lower limb amputations.

**Results:**

In this retrospective analysis the male lower limb amputation is 78.7% compared to 21.3% in females. The highest number of lower limb amputation were in the age group of 61-70yrs followed by 51-60yrs. The commonest etiological factor leading to amputation was infection followed by vascular causes. The highest number of anatomical level of amputation performed was below knee.

**I. INTRODUCTION:**

Limb amputation is one of the most ancient of all surgical procedures with a history of more than 2500 years dating back to the time of Hippocrates<sup>[1,2]</sup>. Amputation is considered the last resort when limb salvage is impossible or when the limb is dead or dying, viable but non-functional or endangering the patient's life<sup>[2]</sup>. The incidences of different pathologies leading to limb amputation have been reported to vary from one place to the other. In developed countries peripheral vascular disease ranks first as cause for amputation whereas trauma, infections, uncontrolled diabetes mellitus and malignancies are the leading cause for amputation in developing countries<sup>3,4</sup>. Unfortunately, most often patients in developing countries presents late when limb salvage is not a viable option. Lower extremity amputation results in significant global morbidity and mortality. Diabetes complications are commonly acknowledged as the leading cause of the global amputation burden. Lower extremity amputation rates appear to becoming more important in analyzing health care as they are increasingly used as a

marker of the quality and overall structure of health care services; particularly in diabetes<sup>5,6,7,8,9</sup>

**AIMS AND OBJECTIVES:**

To study the age and sex distribution

To study the various etiologies leading to major lower limb amputations. To study the various anatomical level surgical procedures performed.

**MATERIALS AND METHODS:**

This is a retrospective study conducted in Narayana medical college and hospital, Nellore between January 1<sup>st</sup> 2018 and December 31<sup>st</sup> 2018 comprising of patients in whom a major lower limb amputation was performed.

**INCLUSION CRITERIA:**

All the patients in whom major lower limb amputation were performed.

All the age group were included in the present study

**EXCLUSION CRITERIA:**

Patients with ray amputation or forefoot amputation were excluded.

**II. RESULTS:****Table .1. Sex distribution:**

| Sex    |    | percentage |
|--------|----|------------|
| Male   | 48 | 78.7%      |
| Female | 13 | 21.3%      |

In this study, maximum number of patients was found to be males 48(78.7%) and the females constituted about 21.3% with 13 cases.

**Table.2. Age distribution:**

| AGE (YEARS) | NUMBER | PERCENTAGE |
|-------------|--------|------------|
| <20         | 1      | 1.6%       |
| 21-30       | 3      | 4.9%       |
| 31-40       | 5      | 8.2%       |
| 41-50       | 11     | 18%        |
| 51-60       | 14     | 23%        |
| 61-70       | 19     | 31.1%      |
| >70         | 8      | 13.11%     |

In this study, most of the patients with hollow viscous perforation were age group 61- 70 years followed by the age group of 51-60 years group. The youngest patient in this study

was 17 years who had traumatic below knee amputation and the oldest patient is of 82 years with BKA secondary to a gangrene of foot. Mean age is 61.6 years.

**Table.3. Etiologies cause of major lower limb amputation**

| ETIOLOGY                  | Total (n=61) | PERCENTAGE |
|---------------------------|--------------|------------|
| VASCULAR                  | 17           | 27.9%      |
| INFECTION                 | 31           | 50.8%      |
| TRAUMA                    | 7            | 11.5%      |
| MALIGNANCY                | 4            | 6.6%       |
| CHRONIC NON HEALING ULCER | 2            | 3.3%       |

In the present study highest percentage of major lower limb amputations were secondary to infection accounting for 50.8% followed by vascular and trauma with 27.9% and 11.5% respectively.

**Table.4. Anatomical level of amputation:**

|              |    |       |
|--------------|----|-------|
| BKA          | 48 | 78.7% |
| AKA          | 9  | 14.7% |
| THROUGH KNEE | 4  | 6.6%  |

In the present study highest percentage of major lower limb amputations were below knee amputation with 78.7%.Above knee amputation and through knee amputation were performed in 14.7% and 6.6% respectively.

### III. DISCUSSION:

In this study male patients constituted to about 78.7%, while female patients constituted 21.3%, the mean age of amputation was 56years, this is in comparison to Phillip L Chalya Et al in which the male to female is 66.7% and 33.3% and Peter A Lazzarini Et al in which the male to female is 69% and 31% In this study the highest incidence of major lower limb amputation is in the age group 61-70 years followed by 51-60 years age group in comparison to Phillip L Chalya Et al in which 41-50 years and Peter A Lazzarini Et al in which mean age at amputation was different for males ( $60 \pm 16$  yrs) and females ( $67 \pm 14$  yrs) ( $p < 0.01$ ). in this present study the major etiological factor for amputation is infection accounting for 50.8% followed by vascular and trauma at 27.86% and 11.5% respectively this is in comparison to Phillip L Chalya Et al in which the etiological factor for amputation is diabetic complication accounting for 41.9% followed by trauma and vascular at 38.4% and 8.6% respectively, Peter A Lazzarini Et al in which the etiological factor for amputation is diabetic complication accounting for 50.5% followed by trauma and vascular at 16% and 25.6% respectively. In the present study majority of the lower limb amputations at below knee level accounting for 78.7% followed by above knee level and through knee level with

14.7% and 6.6% respectively In the study conducted by Phillip L Chalya Et al majority of the lower limb amputations at below knee level accounting for 56% and above knee level 42% .

### IV. CONCLUSION:

In the present retrospective study conducted at Narayana medical college and hospital, majority of the lower limb amputations were conducted in the male patients accounting for 78.7%, the most commonest age group was 61-70yrs followed by 51-60yrs. The commonest etiological factor in this study leading to major lower limb amputation was found to be secondary to infection followed by vascular diseases and trauma accounting to 50.8%, 27.86%, 11.5% respectively. In this study the majority of anatomical level of amputation performed was that of below knee level (BKA)(78.7%) followed by above knee level(AKA)(14.7%) and through knee(6.6%).

### V. REFERENCES:

[1].van Der Meij WK. No leg to stand on: historical relation between amputation surgery and prostheseology. 1995.

[2]. Paudel B, Shrestha BK, Banskota AK. Two faces of major lower limb amputations. Kathmandu University medical journal (KUMJ). 2005;3(3):212-6.

[3]. Abou-Zamzam AM, Teruya TH, Killeen JD, Ballard JL. Major lower extremity amputation in an academic vascular center. Annals of vascular surgery. 2003 Feb 1;17(1):86-90.

[4]. Olasinde AA, Oginni LM, Bankole JO, Oluwadiya KS. Indications for amputations in Ile-Ife, Nigeria. Nigerian journal of medicine: journal of the National Association of Resident Doctors of Nigeria. 2002;11(3):118-21..

[5]. Moxey PW, Hofman D, Hinchliffe RJ, Jones K, Thompson MM, Holt PJ. Epidemiological study of lower limb amputation in England between 2003 and 2008. British journal of surgery. 2010 Sep; 97(9):1348-53.

[6]. Vamos EP, Bottle A, Majeed A, Millett C. Trends in lower extremity amputations in people with and without diabetes in England, 1996–2005. Diabetes research and clinical practice. 2010 Feb 1;87(2):275-82.

[7]. Hazmy W, Mahamud M, Ashikin N, Jamilah S, Yee LE, Shong HK. Major limb amputations in Seremban Hospital: a review of 204 cases from 1997-1999. The Medical journal of Malaysia. 2001 Jun;56:3-7.

[8]. Ofiaeli RO. Indications level and outcome of lower extremity amputations in Nnewi, Nigeria. Journal of Medical Investigation and Practice. 2001;2(1):18-21.

[9]. Nwadiaro HC, Obekpa PO, Kidmas AT, Deshi PJ. Amplitudes of amputation. Nig J. Surg Sci. 2000;10:44-8.