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Lower Limb Amputations, Indications and Outcome

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ABSTRACT

Objective: This study was carried out to determine indications of lower limb amputations and its out-come and complications.

Study design and Duration: It is a prospective type of study.

Setting: This study was conducted

Patients and Methods: Total 75 cases were studied. These cases were reported in emergency department and out- patient doors. Some of them underwent amputations on emergency basis due to septicemia and deep infections causing threat to life. Mostly cases underwent amputation on elective basis. These cases were admitted in the ward. All necessary investigations were carried out and they were evaluated for anesthesia fitness. On emergency basis operation was done in emergency department and elective amputations were done in main operation theater. A written consent was taken from all patients and also from the medical superintendant of the hospital for conducting this study. A proforma was designed for documenting presenting complaints, cause of amputation, total hospital stay, Outcome and complications after operation. After discharge from the ward these cases were called for follow-up and stump was examined for necrosis, infection or hematoma etc. All data was analyzed using Microsoft office and SPSS version 2007. Results were calculated in the form of frequencies and expressed via tables and graphs.

Results: Out of 75 cases 28(37.3%) cases underwent amputation of lower limbs on emergency basis and 47() cases were operated on elective basis. Ages of these cases was ranging from 30-75 years with mean age of 45.7 years. Mostly cases were above 40 years of age. There were 11(14.7%) cases with age range of 30-40 years, 17 with 41-50 years, 28 between 51-60 years, 7 cases between 61-70 years and 12 cases with age above 70 years. There were both male and female populations in this study group. There were 60(80%) males and 15(20%) female patients. It was seen that in most of the cases right limb was involved more than left limb. In 72% cases right lower limb and in 28% cases left lower limb amputation was done. There were different causes of amputation such as in 32 cases diabetes was cause, in 18 cases trauma, in 20 cases acute vascular insufficiency and in 5 cases infection was cause of lower limb amputation. Leading cause was diabetic foot. Most common complication seen after operation was wound infection seen in 23 cases, wound hematoma in 6 cases and stump necrosis in 3 cases was found. Out of 75 pos operative cases 50 were discharged, 15 were referred, 7 cases left against medical advice and 3 cases died due to septicemia and multi organ failure.

Conclusion: Lower limb amputation is most commonly performed amputation. Main cause of amputation is diabetic foot leading to osteomyelitis. Common post operative complication is wound infection. Lower limb amputation is a life saving procedure in most cases. Incidence of this amputation can be decreased by controlling causative factors and limiting the disease in early stages.

Key Words: Lower limb amputation, diabetic foot, Indications of amputation

INTRODUCTION

Amputation of lower limbs has been practicing since the old times. It is done to limit the disease progress and to save life of the patient. There are many indications of of this procedure. In diabetic pagtients diabetic foot is most common indication for lower limb amputation which may be below knee or above knee depending upon the progress of disease. Stump is closed with primary closure if not infected. Infected stump is closed by delayed primary repair when infection is settled down. In gas gangrene of lower limbs infection spreads rapidly and it is highly septic with high mortality rate and amputation is done to remove source of infection and to save life of the patient. Other indication is acute vascular event which leads to ischemia of lower limb. Arterial embolism leading to acute ischemia is much common in patients with heart disease or dyslipidemia. Total 75 cases were studied. These cases were reported in emergency department and out- patient doors. Some of them underwent amputations on emergency basis due to septicemia and deep infections causing threat to life. Mostly cases underwent amputation on elective basis. These cases were admitted in the ward. All necessary investigations were carried out and they were evaluated for anesthesia fitness. On emergency basis operation was done in emergency department and elective amputations were done in main operation theater. A written consent was taken from all patients and also from the medical superintendant of the hospital for conducting this study. A proforma was designed for documenting presenting complaints, cause of amputation, total hospital stay, Outcome and complications after operation. In severe trauma of lower limb where arterial injury leads to ischemia and loss of limb amputation is indicated. In road side accident it is much common when associated with fracture of femur or tibia where injury to femoral artery is much common. There are many indications of of this procedure. In diabetic pagtients diabetic foot is



most common indication for lower limb amputation which may be below knee or above knee depending upon the progress of disease. Stump is closed with primary closure if not infected. Infected stump is closed by delayed primary repair when infection is settled down. In gas gangrene of lower limbs infection spreads rapidly and it is highly septic with high mortality rate and amputation is done to remove source of infection and to save life of the patient. Other indication is acute vascular event which leads to ischemia of lower limb. In burn patients lower limb amputation is also indicated when there is loss of extensive tissue and vascular compromise limb. In this study male and female both populations were included. Mostly males were undergone mputation. It is more common in old age. Post operative complications include wound infection and necrosis of stump. Hematoma formation in stump wound is common when hemostasis is not secured properly. It is common in people of low socioeconomic status which cannot afford to take proper treatment due to expenses so disease progresses leading to loss of limb. Poor compliance is common among diabetic patients which makes them immune-compromised and a minor trauma of lower limb can become a highly infected wound with osteomyelitis. Superficial infection is cured ny antibiotic coverage and debridement of wound. Repeated debridement can remove infected tissue and wound heals with secondary intension. If infection involves bone causing osteomyelitis then amputation is indicated. When only a single toe is involved then ray amputation is sufficient but involvement of heel of foot indicates below knee amputation.

Patients and Methods

This is a prospective study conducted in a tertiary care hospital. Study was completed in a duration os seven months. Total 75 cases were studied. These cases were reported in emergency department and out- patient doors. Some of them underwent amputations on emergency basis due to septicemia and deep infections causing threat to life. Mostly cases underwent amputation on elective basis. These cases were admitted in the ward. All necessary investigations were carried out and they were evaluated for anesthesia fitness. On emergency basis operation was done in emergency department and elective amputations were done in main operation theater. A written consent was taken from all patients and also from the medical superintendant of the hospital for conducting this study. A proforma was designed for documenting presenting complaints, cause of amputation, total hospital stay, Outcome and complications after operation. There are many indications of of this

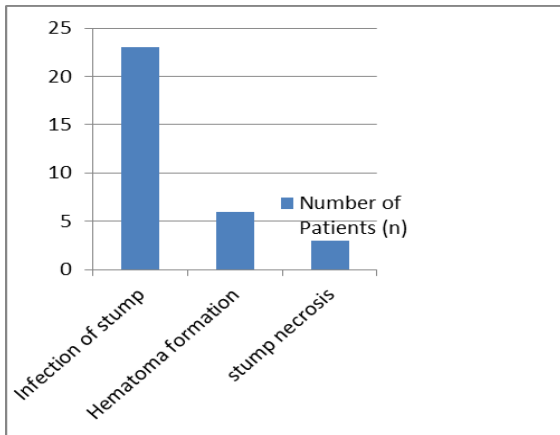
procedure. In diabetic pagtients diabetic foot is most common indication for lower limb amputation which may be below knee or above knee depending upon the progress of disease. Stump is closed with primary closure if not infected. Infected stump is closed by delayed primary repair when infection is settled down. In gas gangrene of lower limbs infection spreads rapidly and it is highly septic with high mortality rate and amputation is done to remove source of infection and to save life of the patient. Patients with various age were included in this study. Mostly old age people were involved. There were different causes of amputation such as in 32 cases diabetes was cause, in 18 cases trauma, in 20 cases acute vascular insufficiency and in 5 cases infection was cause of lower limb amputation. Leading cause was diabetic foot. Most common complication seen after operation was wound infection seen in 23 cases, wound hematoma in 6 cases and stump necrosis in 3 cases was found. Out of 75 pos operative cases 50 were discharged, 15 were referred, 7 cases left against medical advice and 3 cases died due to septicemia and multi organ failure. After discharge from the ward these cases were called for follow-up and stump was examined for necrosis, infection or hematoma etc. All data was analyzed using Microsoft office and SPSS version 2007. Results were calculated in the form of frequencies and expressed via tables and graphs.

Results

Total 75 cases were studied. These cases were reported in emergency department and out- patient doors. Out of 75 cases 28(37.3%) cases underwent amputation of lower limbs on emergency basis and 47() cases were operated on elective basis. Ages of these cases was ranging from 30-75 years with mean age of 45.7 years. Mostly cases were above 40 years of age. There were 11(14.7%) cases with age range of 30-40 years, 17 with 41-50 years, 28 between 51-60 years, 7 cases between 61-70 years and 12 cases with age above 70 years. There were both male and female populations in this study group. There were 60(80%) males and 15(20%) female patients. It was seen that in most of the cases right limb was involved more than left limb. In 72% cases right lower limb and in 28% cases left lower limb amputation was done. There were different causes of amputation such as in 32 cases diabetes was cause, in 18 cases trauma, in 20 cases acute vascular insufficiency and in 5 cases infection was cause of lower limb amputation. . It is common in people of low socioeconomic status which cannot afford to take proper treatment due to expenses so disease progresses leading to loss of limb. Poor compliance is common among diabetic

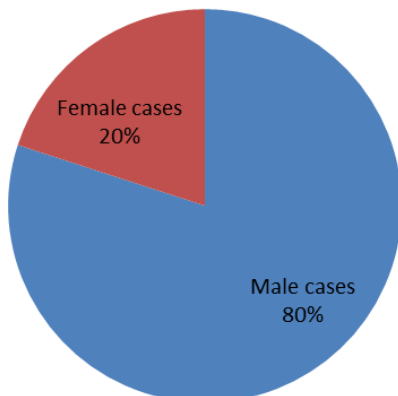


patients which makes them immune-compromised and a minor trauma of lower limb can become a highly infected wound with osteomyelitis. Total 75 cases were studied. These cases were reported in emergency department and out-patient doors. Some of them underwent amputations on emergency basis due to septicemia and deep infections causing threat to life. Mostly cases underwent amputation on elective basis. These cases were admitted in the ward. All necessary investigations were carried out and they were evaluated for anesthesia fitness. On emergency basis operation was done in emergency department and elective amputations were done in main operation theater. Leading cause was diabetic foot. Most common complication seen after operation was wound infection seen in 23 cases, wound hematoma in 6 cases and stump necrosis in 3 cases was found. Out of 75 post operative cases 50 were discharged, 15 were referred, 7 cases left against medical advice and 3 cases died due to septicemia and multi organ failure.



(Figure-1) Post operative complications among study group cases

(Figure-2) Frequency of male and female patients in the study group



(Table-1) Age distribution of patients among study group

Age of Patients (years)	Number of Patients (n)	Frequency (%)
30-40	11	14.7
41-50	17	22.7
51-60	28	37.3
61-70	7	9.3
Above 70	12	16

Indications of Amputation	Number of patients (n)	(%)
Diabetic foot	32	42.6
Trauma	18	24%
Peripheral vascular disease	20	26.7
Infection	5	6.7

DISCUSSION

Diabetes is a very common disease which leads to immuno-suppression and minor infection can become complicated and life threatening. In such patients Diabetic foot is most common complication. When this infection involves deep tissue and bone causing osteomyelitis then amputation is indicated. Lower limb amputation due to diabetic foot is commonly performed when treatment failure occurs. In this way we can limit the disease by removing source of infection. Stump is closed either with primary intention in clean wounds or with delayed primary repair when wound is infected. Male patients more commonly undergo lower limb amputation than females. Old age is more common for acquiring diabetic foot or peripheral vascular disease so leading to amputation. Such patients suffer from life-long disability. In such cases rehabilitative measures can be taken for reducing disability. Amputation of lower limbs has been practicing since the old times. It is done to limit the disease progress and to save life of the patient. There are many indications of this procedure. In diabetic patients diabetic foot is most common indication for lower limb amputation which may be below knee or above knee depending upon the progress of disease. Stump is closed with primary closure if not infected. Infected stump is closed by delayed primary repair when infection is settled down. In gas gangrene of lower limbs infection spreads rapidly and it is highly septic with high mortality rate and amputation is done to remove source of infection and to save life of the patient. Other indication is acute vascular event





which leads to ischemia of lower limb. Arterial embolism leading to acute ischemia is much common in patients with heart disease or dyslipidemia. This is a prospective study conducted in a tertiary care hospital. Study was completed in a duration of seven months. Total 75 cases were studied. These cases were reported in emergency department and out-patient doors. Some of them underwent amputations on emergency basis due to septicemia and deep infections causing threat to life. Mostly cases underwent amputation on elective basis. These cases were admitted in the ward. All necessary investigations were carried out and they were evaluated for anesthesia fitness. On emergency basis operation was done in emergency department and elective amputations were done in main operation theater. A written consent was taken from all patients and also from the medical superintendent of the hospital for conducting this study. A proforma was designed for documenting presenting complaints, cause of amputation, total hospital stay, Outcome and complications after operation. A study conducted in Nigeria reported 26% amputations due to diabetes mellitus. Another study done in Kenya reported 26.5% amputations due to diabetic foot. Old patients undergoing lower limb amputations are at high risk and have high morbidity and mortality rate. Diabetes is a very common disease which leads to immunosuppression and minor infection can become complicated and life threatening. In such patients Diabetic foot is most common complication. When this infection involves deep tissue and bone causing osteomyelitis then amputation is indicated. Lower limb amputation due to diabetic foot is commonly

REFERENCES

1. Van der Meij W K N. No leg to stand on. Historical relation between amputations surgery and prosthesiology 1995; 1: 1-256.
2. Solomon L, Warwick D J, Nayagam S. Orthopaedic operations In: Solomon L, Warwick D J, Nayagam S, eds. Apley's system of orthopedics and fractures. 8th ed. Arnold; 2001; 267.
3. Olasinde A A, Oginni L M, Bankole J O. Indications for amputations in Ile-Ife, Nigeria. Niger J Med 2002; 11: 118-21.
4. Tan M H, Gwee H M, Yeo P P, Lim P, Bose K. Diabetic amputees in Singapore. Tohoku J Exp Med 1983; 14: 575-82.
5. Abou-Zamzam A M, Teruya T H, Killeen J D. Major lower extremity amputation in an academic vascular center. Ann Vasc Surg 2003; 17: 86-90.
6. Aftabuddin M, Islam N, Jafar M A. The status of lower-limb amputation in Bangladesh: A six-year review. Surg Today 1997; 27: 130-4.
7. Greive A C, Lankhorst G J. Functional outcome of lower-limb amputees: a prospective descriptive study in a general hospital. Prosthet Orthot Int 1996; 20: 79-87.

performed when treatment failure occurs. In this way we can limit the disease by removing source of infection. There were both male and female populations in this study group. There were 60(80%) males and 15(20%) female patients. It was seen that in most of the cases right limb was involved more than left limb. In 72% cases right lower limb and in 28% cases left lower limb amputation was done. There were different causes of amputation such as in 32 cases diabetes was cause, in 18 cases trauma, in 20 cases acute vascular insufficiency and in 5 cases infection was cause of lower limb amputation. It is common in people of low socioeconomic status which cannot afford to take proper treatment due to expenses so disease progresses leading to loss of limb. Lower limb amputations can be prevented by strict control of causative factors such as diabetes mellitus and peripheral vascular disease. Cessation of smoking is very important in preventing limb ischemia due to Berger disease.

Conclusion

Diabetic foot and peripheral vascular disease are most common cause of lower limb amputations. Lower limb amputation is most commonly performed amputation. Main cause of amputation is diabetic foot leading to osteomyelitis. Common post operative complication is wound infection. Lower limb amputation is a life saving procedure in most cases. Incidence of this amputation can be decreased by controlling causative factors and limiting the disease in early stages. After amputation proper follow up is necessary to rule out any complication and spread of infection.



8. Pernot H F, Winnubst G M, Cluitmans J J, De Witte L P. Amputees in Limburg: Incidence, morbidity and mortality, prosthetic supply, care utilisation and functional level after one year. *Prosthet Orthot Int* 2000; 24: 90-6.
9. Rommers G M, Vos L D, Groothoff J W, Schuiling C H, Eisma W H. Epidemiology of lower limb amputees in the north of The Netherlands: aetiology, discharge destination and prosthetic use. *Prosthet Orthot Int* 1997; 21: 92-9.
10. Mayfield J A, Reiber G E, Maynard C, Czerniecki J M, Caps M T, Sangeorzan B J. Trends in lower limb amputation in the Veterans Health Administration, 1989-1998. *J Rehab Research Develop* 2000; 37: 23-30.
11. Payne C B. Diabetes-related lower limb amputations in Australia. *Med J Australia* 2000; 173: 352-4.
12. Muyembe V M, Muhinga M N. Major limb amputation at a provincial general hospital in Kenya. *East Afr Med J* 1999; 76: 163-6.
13. Ogunlade S O, Alonge T O, Omololu A B O. Major limb amputation in Ibadan. *Af J Med Sci* 2002; 31: 333-6.
14. Ebskov L B. Diabetic amputation and long-term survival. *Int J Rehab Res* 1998; 21: 403-8.