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Original article

# The Amputations of Limbs at the Kara University Hospital Center (Togo)

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## Abstract

**Objective:** Determine the indications for amputations and analyze the management of amputee patients at Kara university hospital center.

**Materials and Methods:** This is a retrospective study which was carried out for 05 years, from January 01, 2014 to December 31, 2019.The study took place in the departments of general surgery and orthopedics-traumatology at Kara university hospital center. It concerned all amputees of the upper and lower limbs minor or major hospitalized during the study period. During our study period, we enrolled 102 amputee patients including 71 men and 31 women. The average age was 49 years with extremes ranging from 11 to 105 years. The age group of 60 years and over is the most represented. The majority of amputees were farmers (46.1%) followed by housewives (28.4%). The indications for amputations were mainly represented by gangrene of diabetic origin (75.2%) followed by trauma (12.7). Transtibial and transfemoral amputations were the most performed. We had two deaths (2.0%) due to septic shock. Only 8 patients could have prothesis.

**Conclusion:** Limb amputation is relatively frequent. The lower limb is most often affected and the main causes in our context are gangrene of diabetic origin, trauma and infections. Early and correct management of diabetes and serious limb trauma will significantly reduce the incidence of amputation.

**Keywords:** Amputation; Gangrene; Diabetes, Trauma; Transtibial; Prothesis; Togo

## Introduction

Amputation is a surgical procedure that involves removing part or all of an organ or limb. It is said to be major when it is done above the wrist or above the ankle [1]. It recognizes several etiologies, the most common of which are vascular pathologies, trauma, tumors and infections [1,2]. Diabetes and obliterating arterial disease of the lower limbs represent the leading cause of amputation in developed countries, while trauma and infections dominate in underdeveloped countries [3,4]. Amputations have psychological, physical and social impacts on victims, hence multidisciplinary postoperative care to facilitate their social integration. The objective of this work is to determine the indications for amputations and to analyze the management of amputee patients.

### Materials and Methods

This is a retrospective study which was conducted for 05 years, from January 01, 2014 to December 31, 2019. The services of general surgery and Orthopedics-Traumatology served as a framework for our study. It involved all amputees of the upper and lower limbs, minors or adults hospitalized during the study period. All amputee patients with incomplete records were excluded. The epidemiological data (Frequency, age, sex, profession), clinical (indication of amputation, level of amputation), evolution, morbidity and mortality and the apparatus of patients caught our attention.

## Results

During the study period we had amputated 102 patients including 71 men and 31 women with a sex ratio of 2.3. The average age was 49 years with extremes ranging from 11 to 105 years. The age group over 60 years was the most represented (Table I).

| | Number | Percentage |
|---|---|---|
| [0-15 years[ | 5 | 4,9 |
| [15-30 years[ | 4 | 3,9 |
| [30-45 years[ | 14 | 13,7 |
| [45 – 60 years[ | 36 | 35,3 |
| [60 years and over [ | 43 | 42,2 |
| Total | 102 | 100 |

**Table I:** Distribution of amputees according to age group.

The majority of amputee patients were farmers followed by housewives (Table II).

| | Number | Percentage |
|---|---|---|
| Farmers | 47 | 46,1 |
| Housewives | 29 | 28,4 |
| Liberal function | 11 | 10,8 |
| Public service | 9 | 8,8 |
| Pupils/students | 4 | 3,9 |
| Drivers | 2 | 2,0 |
| Total | 102 | 100 |

**Table II:** Distribution of amputees according to profession.

The indications for amputations were multiple but dominated by diabetic gangrene followed by trauma to the limbs (Table III).

Among Trauma we have crushing limbs and Neglected trauma infected

| | Number | Percentage |
|---|---|---|
| **Diabetic gangrene** | **77** | **75,5** |
| **Trauma** | **13** | **12,7** |
| *Crushing limbs* | *10* | *9,8* |
| *Neglected trauma infected* | *3* | *2,9* |
| Tumors | 7 | 6,9 |
| Obliterating arterial disease | 3 | 2,9 |
| Neglected necrotizing fasciitis | 2 | 2,0 |
| **Total** | **102** | **100** |

**Table III:** Indications for amputation.

Transtibio-fibular amputations have been performed a lot followed by transfemoral and transhumeral amputations (Table IV)

| | Number | Percentage |
|---|---|---|
| Trans-tibio-fibular | 57 | 55,9 |
| Transfémoral | 32 | 31,4 |
| Transhumeral | 7 | 6,9 |
| Phalangeal disarticulation | 3 | 3,0 |
| Amputation of Lysfranc | 1 | 1,0 |
| Amputation of Syme | 1 | 1,0 |
| Hip disarticulation | 1 | 1,0 |
| Total | 102 | 100 |

**Table IV:** Distribution of patients according to the level of amputation.

The evolution was marked by an infection of the operating site in 42 (41.2%) amputees; secondary stump necrosis in 4 (5.9%) cases of leg amputation and in cases of Lysfranc and Syme amputation; and phantom limb syndrome in 98 cases.

The infection of the operating site was brought under control by simple local care. Secondary stump necrosis required re-amputation in a well vascularized area upstream. Psychological monitoring made it possible to reduce even a little bit to reduce the symptomatology of the phantom member.

We had two deaths (2.0%) due to septic shock in one leg amputee for diabetic gas gangrene and one amputee patient for neglected necrotizing leg fasciitis.

The average length of hospital stay is 21 days. Only 8 (7.8%) major amputees were able to benefit from a prothesis.

## Discussion

Amputation is one of the oldest surgical procedures performed in the world, the techniques of which have improved with war surgery [5]. The geographic location has a considerable influence on the frequency, age, sex and etiologies of amputations. The number of amputations remains high in underdeveloped countries due to traffic accidents and the lack of means of care in the event of serious injuries to the limbs, in contrast to developed countries where it is decreasing due to the development of surgical revascularization and the good management of vascular disease [6]. Otherwise,the frequency is increasing more and more in developing countries because of the resurgence of cases of diabetes and complications, especially in the elderly [7]. In the majority of African series, a predominance of young amputated subjects has been observed because the majority of the population is young and more exposed to traffic and work accidents [4,8,9], in our series a

predominance of elderly subjects who presented complications of diabetes or obliterating arterial disease of the lower limbs.

The majority of amputees were male, which has been the rule in the series of developing countries [4,8,9]. This could be explained by the fact that men are more active and use more means of transport in these countries, thus exposing them to traffic accidents.

Farmers followed by housewives represented the most affected social class in our series. The same observation was made by Touré and al and Souma and al in Mali [10-12].

The indications for amputations are multiple, dominated by trauma in developing countries and by vascular pathologies in developed countries. Trauma is mainly represented by limb crushing and neglected or traditionally treated open limb fractures. These traumas are most often due to traffic accidents favored by the popularization of two-wheeled means of transport and to road drinking. Crushing of limbs inevitably leads to amputation, especially in our developing countries where the means of adequate care are lacking. Open fractures are sometimes poorly managed due to the lack of appropriate surgical means or financial means. Furthermore, the ignorance of the African population often resorts to traditional treatment, thus complicating development [4,10-12]. However, our series is similar to the Western series where diabetic gangrene was the first etiology of amputation.

Transtibial amputation was the most performed in most publications. This could be explained by the fact that the foot is the site of predilection for arteriopathies, especially diabetic ones. It is also the part of the limb most exposed to attacks and infectious lesions that can progress to gangrene [8].

The mortality in our series is 2.0%. It is almost the same rate in the African series [8,12,13]. This high rate of death is explained by the delay in consultation, the often late acceptance of amputation by the patient and the decompensation of faults [8]. Amputation is a surgical procedure that must be surrounded by a psychological preparation, physiotherapy and equipment facilitating good social integration of the amputee. Pre- and postoperative psychological support allows the amputee to be able to accept his new condition and participate in reducing postoperative complications such as phantom limb syndrome.

Amputation serves two basic purposes. The first is the preservation of life and the second is the preservation of function. The amputated limb is replaced by a device called a prosthesis [5]. However, it must be noted that in developing countries, amputees have difficulty in obtaining these prostheses for lack of financial means. This does not promote their social integration.

## Conclusion

Limb amputation is relatively common. The young persons is most interested in developing countries. The lower limb is most often concerned and the main etiologies in our context are diabetic gangrene, trauma and infections. Accessibility to prosthetic devices remains difficult due to lack of financial means. Early and correct management of diabetes and serious limb trauma will significantly reduce the incidence of amputation.

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