Lower Limb Amputations in the Southern Part of Jordan

Wael Al-Thunaibat*1 and Abdel Fattah Al-worikat1

Abstract

Objective: To determine the prevalence and causes of lower limb amputations in the southern part of Jordan.

Methods: The medical records of all patients with lower limb amputation who were followed up at Physical Medicine and Rehabilitation Clinic at Prince Ali Hospital in Karak province, between November 1998 and March 2006 were reviewed; age, sex, and causes of amputations were recorded.

Results: A total of (122) patients were studied, among which 87 men (71%) and 35 women (29%) were included, the mean age was 46 years. Trans-tibial amputation was the leading level (52%). The most common cause of amputation was DM (34%) followed by trauma (33%).

Conclusion: Diabetes Mellitus and trauma are the leading causes of lower limb amputation in the southern Part of Jordan. Programs intended to minimize the complications of these conditions and proper identification of high-risk patients should decrease the occurrence of amputations.

Keywords: Amputation, lower limb, prevalence.

Introduction

Limb-fitting services started in Jordan with a small workshop adjoined to the Royal Medical Services (RMS) of Amman Military Hospital in 1968.1

Nowadays, there are many workshops in the public and private sectors. In the public sector, there are two limb-fitting workshops, the Medical Rehabilitation Department at Al- Bashir Hospital in the Ministry of Health; and King Hussein Medical Centre at the Royal Rehabilitation centre.

In RMS, there are three prosthetic-orthotic clinics and workshops; in KHMC, at Prince Ali Hospital in Karak province, and at Prince Rashid Ben Al-Hussein Hospital in Irbid. The limb-fitting services in the RMS are being run by a team of physical medicine and rehabilitation doctors, prosthetics and physiotherapists.

The limb-fitting services at the RMS have progressed for many years in varying circumstances. The approach has been developed through constant observation and practical handily of many different types of patients; from...
the preoperative stage to discharge when the
patient is fully mobile with prosthesis or a
wheelchair or both, and long-term follow up.
Limb amputation is a major disability that affects
an increasing number of individuals. Improved
function through rehabilitation must be the
utmost goal in limb amputation. Diabetes,
atherosclerosis obliterans, and trauma all are
leading causes of limb loss. Programs intended to
minimize the complications of these conditions
and identify high-risk patients should decrease
the occurrence of amputations.

Foot ulceration and amputation can be prevented
by up to 78% with early identification and
effective management. ²

The aim of this study was to increase
understanding of the incidence and causes of
limb amputation, in order to promote programs of
prevention and improved quality of care to all
persons with an increased risk of limb loss, and
audits in detail the incidence, causes ands levels
of amputations in the southern part of Jordan.

Methods

The medical records of all patients with lower
limb amputation, who were followed up at
Physical Medicine and Rehabilitation Clinic at
Prince Ali Hospital in Karak province, between
November 1998 and March 2006 were reviewed;
age, sex, and causes of amputations were
recorded.

Results

The total number of patients included in this
study was 122, 87(71%) being males, and 35
(29%) females, with age range from 10 to 80
years. The dominant age group was 61-70 years
(36%) (table 1). The mean age was 46 years.

Trans-tibial amputation was the leading level;
found in 64 (52%) patients; the second leading
level was trans-femoral amputation which was
found in 21 (17%) patients (table 2).

DM was the commonest cause of lower limb
amputations, appeared in 42 (34%); followed by
trauma, which was noticed in 40 (33%) of
patients (table 3).

Among all traumatic amputees, 14 (35%) were
due to mine blast injuries, and 11 (28%) due to
road traffic accidents.

<table>
<thead>
<tr>
<th>Age group</th>
<th>Frequency</th>
<th>Percentage %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 10</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>11 - 20</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>21 - 30</td>
<td>11</td>
<td>9</td>
</tr>
<tr>
<td>31 - 40</td>
<td>15</td>
<td>11</td>
</tr>
<tr>
<td>41 - 50</td>
<td>12</td>
<td>10</td>
</tr>
<tr>
<td>51- 60</td>
<td>29</td>
<td>24</td>
</tr>
<tr>
<td>61 - 70</td>
<td>44</td>
<td>36</td>
</tr>
<tr>
<td>71- 80</td>
<td>9</td>
<td>7</td>
</tr>
<tr>
<td>Total</td>
<td>122</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 1: Age Group Frequencies and Percentages of Amputees.

<table>
<thead>
<tr>
<th>level of Amputation</th>
<th>No.</th>
<th>% Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Through Hip</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>2 Trans femoral</td>
<td>21</td>
<td>17</td>
<td>14</td>
</tr>
<tr>
<td>3 Through knee</td>
<td>4</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>4 Trans Tibial</td>
<td>64</td>
<td>52</td>
<td>40</td>
</tr>
<tr>
<td>5 Through ankle</td>
<td>15</td>
<td>12</td>
<td>11</td>
</tr>
<tr>
<td>6 Partial Foot amputation</td>
<td>12</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td>7 Multiple</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>122</td>
<td>100</td>
<td>37</td>
</tr>
</tbody>
</table>

Table 2: Distribution of Amputation levels.

<table>
<thead>
<tr>
<th>Cause of amputation</th>
<th>No of pts.</th>
<th>Percentage %</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>DM</td>
<td>42</td>
<td>34</td>
<td>30</td>
<td>12</td>
</tr>
<tr>
<td>Trauma</td>
<td>40</td>
<td>33</td>
<td>34</td>
<td>6</td>
</tr>
<tr>
<td>P.V.D</td>
<td>17</td>
<td>14</td>
<td>10</td>
<td>47</td>
</tr>
<tr>
<td>Tumor</td>
<td>13</td>
<td>11</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>Infection</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Congenital</td>
<td>6</td>
<td>5</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>122</td>
<td>100</td>
<td>87</td>
<td>35</td>
</tr>
</tbody>
</table>

Table 3: Causes of Amputation.
Discussion

Amputations and limb-fitting services have received the interest of many authors worldwide.

Poljlainen and Alaranta \(^3\) conducted a two-year study in lower limb amputations in southern Finland.

They reported 880 amputations performed on 705 amputees. The trans-femoral was the dominant site of amputation, 42%, followed by the trans-tibial amputations, 28%.

Peripheral Vascular Disease (PVD) was the most common case of amputation (43%) followed by diabetes mellitus (40%). Another study in southern Finland by Laaperi et al. \(^4\) reported 268 amputees over one year (1989) with mean age of 70 years. The PVD was the main cause of amputations, 79% (diabetic-vasculopathy, 43% and 36% arterio-sclerosis). Trans-femoral amputation was the most common, 49%, followed by the trans-tibial amputation, 29%.

In England, Rubin luff \(^5\) reported from the Department of Health and Social Security (DHSS) data in 1986 that the trans-femoral amputation, formed the largest group, 47%, followed by the trans-tibial (45%) of the lower limb amputations performed in 1985.

An Arab study by Al-Turaiki and Al-Falali \(^6\) from Saudi Arabia reported in a retrospective study over 14 years, 3210 amputees with the mean age of 30.5 years. The trans-tibial amputation was the majority (45.2%) followed by the trans-femoral (21.6%). Trauma was the leading cause of amputations (59.7%) followed by the disease (30%).

Another study from the Northern part of Jordan, \(^1\) reported 235 amputees over 3 years with the mean age of 38.6 years. The trans-tibial was the leading level of amputation (59.1%). The most common cause of amputation was trauma (51%) followed by DM (32.3%).

The exact number of amputations performed in Jordan is not known because of the manner in which health services are delivered. Surveys, estimates, and analyses of hospital records were reported by many in an attempt to gather complete data that may prove helpful to clinicians and researchers in their assessment, management, and treatment of amputees.

The ratio of below-knee (trans-tibial) to above knee (trans-femoral) amputees is increasing, thus throwing doubt on the trans-femoral amputations from disease-related problems. As medical and surgical techniques improved and perceptions changed, the decision to operate at the trans-tibial level from vascular disease increased.

The preservation of the joint, with its proprioceptive function and reduced energy expenditure in ambulation, especially for the elderly, the outcomes of survival and the successful use of a prosthetic device increased. \(^8\)

In our study, the prevalence of transtibial amputation is (52%), in contrast to transfemoral amputations which have been considered as (21%) and this prevalence is similar to that study which was reported from Saudi Arabia. \(^6\)

Glattly and Kay showed an increase in transtibial over any other level of amputations. \(^8\)

DM and trauma were the most frequent causes of amputations by Glattly and Kay, \(^8\) this finding is similar to our Data.

Traumatic amputations due to road traffic accidents and mine blast explosion was the second main cause of amputation in our study in contrast to studies from England, Scotland and Australia, \(^8, 9\) where the peripheral vascular disease was the leading cause of amputations.

(50%) of all nontraumatic lower–extremity amputations are performed in patients with diabetes. \(^10\)

Lower extremity amputation in patients without diabetes is almost exclusively performed as a result of PVD. \(^2\)
Conclusion

Diabetes mellitus and trauma are the leading causes of limb loss in Jordan. Programs intended to minimize the complications of these conditions and identify high risk patients should decrease the occurrence of amputations.

Trauma prevention is of greatest importance in children and adolescents. Programs offered directly to them in school and by social organizations should have a positive effect.

The data from this study indicates the demand for limb-fitting services and rehabilitation and forms a basic guideline for future development of prosthesis and orthotic services, and helps in the appropriate evaluation of the future needs in personal facilities and budgets.

References
