Pattern of Burn patients admitted in a Burn Unit of Bir Hospital Kathmandu

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**ABSTRACT**

**INTRODUCTION:** Burn injuries and their sequelae pose a public health problem. Over 90% of fatal fire-related burns occur in developing countries. The objective of this study is the assessment of present status of burn injury.

**METHODE:** Over one year period from April 2007 to April 2008 a total number of 100 patients who were admitted in the burn unit were studied retrospectively.

**RESULT:** Total 100 patients, having 15% – 90% total body surface area burn, were admitted in the burn unit. Among them 44 were male and 56 female. 71% of the burn victims were in age group of 16 -35 years. The causes of burn injuries were flame burn (64%), scald (21%), electric burn (14%). The superficial burn was found only in the 18% of the cases. Most of the patients were involved in domestic fire while cooking. The causes of injuries were accidental in 84%, suicidal 14%, and 2% homicidal. The total mortality was 16% and total body surface areas in those patients were more than 40%. The total hospital stay was 60 days in average.

**CONCLUSION:** Burn is a preventable condition and most commonly occurs due to domestic fire. Recovery is slow and hospital stay is prolonged. Outcome of the treatment and morbidity differs in patients. The total body surface area more than 40% has the higher mortality rate.

**KEYWORDS:** Total Body surface area (TBSA), hospital stay, mortality.

**INTRODUCTION**

Burn injuries and their sequelae pose a public health problem. Annually fire-related burns are responsible for about 265,000 deaths in the world. Over 90% of fatal fire-related burns occur in developing or low- and middle-income countries (LMICs) with South-East Asia alone accounting for over half of these fire-related deaths¹. It is the third leading cause of accidental death in the United States of America². More girls in South East Asia Region die of fires than of tuberculosis, HIV/AIDS and malaria combined³.

Burn injuries and their sequelae are major causes of morbidity and mortality worldwide. It has got the both psychosocial and economic impact to the patient and to his family. It is one of the preventable condition for which education is essential. The adequate knowledge of the epidemiological characteristics and associated risk factors and a good practice of burn management can reduce the mortality and morbidity of burn patients.

Burn injuries and their related morbidity, disability and mortality represent a serious public health problem. Its prevention and community awareness is the need of today which is not effective without its epidemiological study. The objective of this study was to find out the major cause and effects of burn injuries in an underdeveloped country like Nepal.

**METHODE**

The records of the 100 patients with 15% to 90% burn admitted in burn unit at Bir Hospital, Katmandu,
since April 2007 to March 2008 were retrospectively studied using a specially designed pre-tested form for the collection of epidemiological information. Only admitted patients of age more than 16 years were included in the study. Patients requiring outpatient treatment were excluded.

TBSA of burn was assessed using Wallace’s Rule of Nines, and fluid resuscitation requirements using the Parkland Formula (Total intravenous fluid requirement for the first 24 hours = Total burn surface area (%) x Weight (kg) x 4.

RESULTS

Among 100 admitted cases 56 were female and 44 were male. The male female ratio was 1:1.27. The average age of the patient was 26 in male and 34 was in female.

<table>
<thead>
<tr>
<th>Age group</th>
<th>Male (M)</th>
<th>Female (F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>16-25</td>
<td>17</td>
<td>22</td>
</tr>
<tr>
<td>26-35</td>
<td>14</td>
<td>18</td>
</tr>
<tr>
<td>36-45</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>46-55</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>56-65</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>&gt;66</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>44</td>
<td>56</td>
</tr>
</tbody>
</table>

The victims of burn were 71% in both sexes in the age group of 16 - 35 years. Females were affected more in the age group of 16-25 years.

Etiology

The most common reason for burn injury was flame burn by kerosene, petrol and LP gas leakage 64%, followed by scald 21% and electric burn 14%. Other causes (chemical, lighting) were accounted for 1% of the burn admissions.

<table>
<thead>
<tr>
<th>Table 2: Etiology of Burn injury</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
</tr>
<tr>
<td>--------</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

There were 18% of patients with superficial and 82% with deep burn were caused by flame burn.

In 84% cases the burns were accidental. In 14% of the patients, the burns were alleged attempted suicide, while 2% were victims of attempted homicide.

Patients whose history was doubtful were placed in the accidental group. Among those alleged of suicidal attempt 71.4% (10) were females and 14.3% male in the age group of 26-35 years.

Hospital stay

The average stay at hospital stay was 60 days ranging from 1 to 124 days.

Outcome

The total mortality was 21%. The average TBSA of burn in these patients was 70.8% ranging from 45-95%. In total 7% of cases with 60-65% of deep burn had survived.

DISCUSSION

Burn injuries and their related morbidity, disability and mortality represent a serious health problem of increasing importance in developing countries like Nepal. Burn injury related studies are a prerequisite for effective burn prevention programs because each population seems to have its own epidemiological characteristics and knowledge of the epidemiology of burns is needed to select target groups for preventive actions. Burns are serious but preventable accidents and we cannot plan any preventive program without recognition of affecting factors. The present study revealed that 69% of cases are in the age group of 16-35 years. Females were affected more in the age group of 16-25 years. The involvement of females in domestic activities may be the main factor for burn injuries in female. The age distribution revealed by the present study is similar to that found in other studies.45

In our study the flame burn by kerosene, petrol and LP gas leakage was found in 64% of the cases. The male female ratio was 1:1.27. Females were affected mostly. In 84% of the cases the burns were accidental. Similar result was found in the study of Ahmad M in Pakistan6.
The burn due to kitchen fires usually found on the front of thighs, abdomen chest and face. Similar result was found in one of the study done in India.  

14% of the patients have suicidal, while 2% of cases involved attempted homicide. Suicidal attempt is found more in female due to marital disharmony and socioeconomic condition. The highest incidence of suicides by burning is also found in Asian and African women. Occupational safety knowledge and practice is found to be compromised in majority of cases.

The outcome of survival differs in different study. The survival rate is poor in more than the 40% of TBSA burn but mortality of the burnt patient is related to their TBSA burn, age and co morbid conditions. The study done by Live H. and his team showed poor survival of patients with greater than 40 per cent body surface area burn of any age group but 7% of cases with 60-65% of burn had survived in our study. In nutshell we should try to improve further.

Burn mortality rate of NAMS, Bir Hospital is now comparable with those of many countries but we don’t have any burn prevention goal. Many countries have the goal of burn prevention, in order to minimize the impact on community resources and the cost of hospital management and rehabilitation. They have succeeded to control the burn related injuries in the last decades and we could learn from their experiences.

CONCLUSION

Burn is a preventable condition and most commonly occurs due to domestic fire and women are found more vulnerable group for burn related injuries. Recovery is slow and hospital stay is prolonged. Outcome of the treatment and morbidity differs in patients. The total body surface area more than 40% has the higher mortality rate. Prevention and management of burn are the necessity of the developing countries. That’s why the advocacy in burn and burn related injury prevention is the need of today.

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