Introduction

In all societies, burns continue to constitute a medical, psychological, and social problem that involves not only the physician and patient but also all society. Burns are a major health problem. The preventable nature of the injury, the social and environmental factors associated with it, and the age groups involved make the study of burns epidemiology necessary. There are a few burn centres in Pakistan that are well equipped, but the majority of patients are still treated in hospitals without established burns units.

The Pakistan Institute of Medical Sciences (PIMS) in Islamabad, Pakistan, is the major tertiary care hospital in the capital but it does not have a burns unit. All the patients are managed by the Department of Plastic Surgery. Thus a study of burns epidemiology in hospitalized patients is likely to have a bearing on the total picture available from the entire country.

The aim of the study is to analyse the demographical data of this problem and to compare the data with other published reports from neighbouring countries.

Materials and methods

This prospective study was conducted at PIMS between January 2002 and December 2003. Only hospitalized patients aged over 12 years were included. Patients below 12 years were excluded. Patients requiring outpatient treatment were also excluded. A total number of 77 males and 65 females fulfilled the criteria. The mean age of the males was 32.2 yr and of the females 24.4 yr, while the male/female ratio was 1/1.18. Burns were commonest during the winter season (42.2%). In 6% of the patients, the burns were due to suicide attempts and in 15% to homicidal intent. The burns were accidental in 79% of cases. The major mechanism in females was stove burst (22%) and in males direct flame (18%). The kitchen was the commonest site of the accident in females (27%). Housewives were the most frequently affected (35%). More married males (39%) were burned than unmarried females (18%). Inhalational injury was present in 23% of the patients. Males had average total body surface area burned of 27.4% compared with 39.5% in females. Eighteen per cent of the deaths occurred among males and 16% among females. This study provides a comprehensive overview of hospitalized burn patients in Pakistan. Prevention is always the rule to be safe from burns but, once they occur, immediate and proper care should be given with aggressive treatment in order to minimize post-burn problems.
Medico-legal aspects

In 6% of the patients, the burns were due to attempted suicide, while 15% of cases involved attempted homicide. In 79% of the cases the burns were accidental. Patients whose history was doubtful were placed in the accidental group.

Mechanism of burns

Stove burst was the major mechanism in females (22%), while in males 18% had direct flame injury (Table I).

Table I - Mechanism of burns

<table>
<thead>
<tr>
<th>Mechanism</th>
<th>Males</th>
<th>Females</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct flame injury</td>
<td>26</td>
<td>12</td>
</tr>
<tr>
<td>Stove burst</td>
<td>3</td>
<td>31</td>
</tr>
<tr>
<td>Flame catching clothes</td>
<td>19</td>
<td>11</td>
</tr>
<tr>
<td>Electrical injury</td>
<td>14</td>
<td>1</td>
</tr>
<tr>
<td>Scald</td>
<td>10</td>
<td>4</td>
</tr>
<tr>
<td>Self-inflicting – kerosene oil</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Chemical</td>
<td>1</td>
<td>Nil</td>
</tr>
</tbody>
</table>

Place where burns occurred

The kitchen was the place where burns most commonly occurred (27%), whereas in males the courtyard or workplace was commonest (45%) (Table II).

Table II - Place of accident

<table>
<thead>
<tr>
<th>Place</th>
<th>Males</th>
<th>Females</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kitchen</td>
<td>6</td>
<td>39</td>
</tr>
<tr>
<td>Courtyard</td>
<td>41</td>
<td>4</td>
</tr>
<tr>
<td>Workplace/Outside</td>
<td>23</td>
<td>5</td>
</tr>
<tr>
<td>Bedroom</td>
<td>4</td>
<td>9</td>
</tr>
<tr>
<td>Living Room</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Bathroom</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

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Burns continue to be a major environmental factor responsible for significant morbidity and mortality in developing countries. The present study presents data from the major hospital in our capital. There is no burn unit in this hospital or in the city. All burn patients are managed by our Department of Plastic Surgery. In our review, flame was the commonest cause of burns, followed by electrical injuries and scalds, as reported elsewhere. In this study, gas explosion and kerosene were most frequently involved. This can be explained by the fact that gas and kerosene are widely used as domestic fuel in Pakistan. Unwise use of kerosene by some people was also noted. The majority of the patients (42%) were burned during the winter, when gas and kerosene were used for fuel and heating. This observation is consistent with other reports. In the majority of patients (79%) the burns occurred accidentally, and patients having a doubtful history were also included in the accidental group. Attempted suicide by burning accounted for 6% of the patients in our study, with a female: male ratio of 1:2. This is in contrast to observations in other studies. However, this higher ratio in males corresponds to observations in studies carried out in other countries. The reason may be that males in this area are the main stress-bearers and the only earning hands in the family. When problems are encountered, it appears that people with a lower level of literacy find it harder to resolve them easily, and they give up during financial crises.

Homicide by the infliction of a burn injury is another important issue that has received little attention in the literature in the past. In the present study 15% were so affected, and this is probably an underestimate of the true figure due to reluctance - for legal reasons - to report the real reason for the injury. The majority of burn injuries reported here occurred at home, the kitchen being the commonest location. This finding is consistent with those of other recent studies.

In our study, the most commonly injured body regions were the trunk and the lower and upper limbs. An important factor was the presence of inhalational injury, noted in 23% of the patients - this was definitely a factor as regards mortality. It is commonly thought that females are more affected in burn injuries. In contrast, our study showed that burns were more frequent in males than females. However, females were more severely burned than males: the average burn was 27.4% TBSA in males and 39.5% TBSA in females.

In our study, 35% of the patients were housewives and 14% were unemployed or dependent workers. A similar observation was made in other studies. The overall mortality in our study was 34%, a similar finding to other studies. This is in contrast to the very low mortality noted in some other studies, a contrast due to the obvious factor of the specialized care provided at burns centres. TBSA burned also affected overall mortality. The female: male death ratio in this study was 1:1.1. The high mortality confirms the necessity of specialized burn units.

Conclusion

This study provides a comprehensive overview of hospitalized burn patients in Pakistan. Prevention is always the rule to be safe from burns but, once they occur, immediate and proper care should be given.
RÉSUMÉ. Les Auteurs de cette étude prospective se sont proposés de considérer les données démographiques des patients brûlés hospitalisés dans l’Institut Pakistanais des Sciences Médicales (IPSM), Islamabad, Pakistan. L’étude a été effectuée par l’IPSM entre janvier 2002 et décembre 2003. Seulement les patients âgés d’au moins 12 ans, de tous les deux sexes, ont été admis. Les patients âgés de moins de 12 ans ont été exclus, comme aussi les patients traités en régime externe. En tout, 77 patients du sexe masculin et 65 du sexe féminin ont satisfait ces critères. L’âge moyen des patients mâles était de 32,2 ans et des femelles de 24,4 ans, tandis que le rapport mâles/femelles était 1/1,18. Les brûlures étaient plus communes pendant l’hiver (42,2%). Dans 6% des patients les brûlures ont été causées par des tentatives de suicide et dans 15% des cas par des intentions homicides. Dans 79% des cas les brûlures étaient accidentelles. Le mécanisme principal chez les femmes était l’explosion des poêles (22%) et, chez les hommes, la flamme directe (18%). Le site le plus commun des accidents chez les femmes était la cuisine (27%). Les ménagères étaient la catégorie la plus intéressée (35%). Un nombre supérieur d’hommes mariés (39%) a subi des brûlures par rapport aux femmes non mariées (18%). Les lésions par inhalation étaient présentes dans 23% des patients. Les patients mâles présentaient une surface corporelle brûlée moyenne de 27,4% par rapport à 39,5% dans les femmes. Dix-huit pour cent des décès se sont vérifiés parmi les patients mâles et 16% parmi les patients du sexe féminin. Les Auteurs de cette étude fournissent une analyse comprehensive des patients brûlés au Pakistan. La prévention est toujours la règle pour être protégé contre le risque des brûlures mais, une fois qu’un cas se vérifie, il faut traiter le patient immédiatement et correctement en manière agressive pour réduire au minimum les problèmes après les brûlures.

BIBLIOGRAPHY


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CLARIFICATION

On 22 March 2006, Dr George Virich, of Queen Elizabeth Central Hospital, Blantyre, Malawi, submitted to the attention of our Editorial Office an article entitled “Burns in Malawi” for publication in Annals of Burns and Fire Disasters. The request for publication and the copyright declaration were attached. The article was published in Vol. XIX, no. 4, December 2006. On 31 December 2006, after the Journal had been printed, the author sent an e-mail asking to withdraw the article because “...the paper has been withdrawn as it has been revised. The title is changed, the content is slightly different, etc...”. Under these circumstances the Editorial Office publishes this clarification.