Outcome of Conservative Management of Burns: Critical Review

A/Samie A M¹, Mohamed K M²

Abstract

Background: Management of burn continues to be a great challenge. Dressing and topical antibiotics reduce mortality by fifty percent and it is thought to reduce infection rate and retains moisture. Objectives: To assess long term complications of burns in patients treated in general surgical units. Patient and methods: Su CW and Alizadeh K classification was used in hypertrophic scars assessment. The state of depression was assessed using Beck classification of depression for 112 patients treated at Khartoum Teaching Hospital and Soba University Hospital between Jan1999- Feb2000.

Results and discussion: 42(37.5%) had hypertrophic scars. Color changes were seen in 17 patients. Chronic ulcers were seen in seven patients, in three of them it was Marjolin’s ulcer. 20(28.6%) had mild and three (4.3%) had severe depression. Conclusion: Conservative management of burns is associated with more wound complications.

Introduction

Burn injuries result in destruction of some or all layers of the skin. Children are more vulnerable. Scarring and pigment changes in burns depend on the thickness affected. However, it is reduced by skin grafting. Damaged tissues separate in the active cellular process of desloughing that takes three weeks. This may become a nidus for infection that adds to local complications. Gross oedema of limbs causes venous obstruction which is particularly likely in circumferential burn. The accumulation of fluids in the hand leads to claw posture that ends in contractures.

The favorable results in burns in the last decades were attributed mainly to small burnt areas, short delay between injury and admission, early surgery and remarkably good facilities.

Because of its disastrous cosmetic consequences, facial burns must be managed in aesthetic units. Hand burns should be aggressively excised and grafted. Palms rarely need grafting.

Reconstructive surgery offers the only answer for treatment of contractures. Tissue expansion, free tissue transfer, prosthetic and osteo-integrated prosthesis is important for some patients.

Objectives

This study was designed to assess long term complications of burns in patients who were treated conservatively in general surgical units.

Patients and methods

This is a retrospective study of patients suffering of burn injury managed in general surgical units at Soba University Hospital and Khartoum Teaching Hospital in the period Jan 1999 to Feb 2000.

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Su CW and Alizadeh K classification was used in hypertrophic scars assessment. The state of depression was assessed using Beck classification of depression.

Results

All patients with burns seen during the period of the study were enrolled in this study. They were 112 patients with male: female ratio of 1:1.3. Children younger than 5 years constituted 22.3% (Table 1). The cause of thermal injury was flames in 47(42%) and scalds in 42(35.5%) (children had constituted 29(69%) of victims of scalds). Electrical burn was seen in 11(9.8%) and contact burn in 12(10.7%) patients.

Table 1: Age distribution of patients

<table>
<thead>
<tr>
<th>Age in years</th>
<th>Frequency</th>
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<tbody>
<tr>
<td>&lt;5</td>
<td>25(22.3%)</td>
</tr>
<tr>
<td>5-10</td>
<td>17(15.2%)</td>
</tr>
<tr>
<td>11-20</td>
<td>15(13.4%)</td>
</tr>
<tr>
<td>21-40</td>
<td>44(39.3%)</td>
</tr>
<tr>
<td>&gt;40</td>
<td>11(9.8%)</td>
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Burn surface area was ≤ 30% in 49(43.7%), 31-50% in 59(52.6%) and ≥ 50% in four patients. 23% of patients were not admitted to hospital. All patients received systemic antibiotics. 46.5% were managed as an in-patient for more than 12 weeks. 47% of the patients had open method of dressing while 53% had closed dressing.

All patients were treated conservatively and none of them received physiotherapy. 84(75%) patients had contractures (Fig1). Contractures involved the axillae in 14(16.7%), elbow in 18(21.4%), wrist in 17(20.2%) patients (Table 2). 41.6% had contractures in more than one site. This was true in patients with more than 50% burn and in all children below the age of five years.
Table 2: Sites of contracture among the study population

<table>
<thead>
<tr>
<th>Site</th>
<th>Frequency</th>
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<tbody>
<tr>
<td>Axilla</td>
<td>14(16.7%)</td>
</tr>
<tr>
<td>Elbow</td>
<td>18(21.4%)</td>
</tr>
<tr>
<td>Wrist</td>
<td>17(20.2%)</td>
</tr>
<tr>
<td>Small hand joints</td>
<td>26(19%)</td>
</tr>
<tr>
<td>Palm</td>
<td>05(06%)</td>
</tr>
<tr>
<td>Groin</td>
<td>03(3.6%)</td>
</tr>
<tr>
<td>Knee</td>
<td>11(13.1%)</td>
</tr>
<tr>
<td>Ankle</td>
<td>01(1.2%)</td>
</tr>
<tr>
<td>Trunk</td>
<td>11(13.1%)</td>
</tr>
<tr>
<td>Head and neck</td>
<td>16(19%)</td>
</tr>
<tr>
<td>Face</td>
<td>07(8.6%)</td>
</tr>
<tr>
<td>Total</td>
<td>84(100%)</td>
</tr>
</tbody>
</table>

Fourty-two (37.5%) patients had hypertrophic scars (Fig 2). Color changes were seen in 17 patients (Fig 3). Chronic ulcers were seen in seven patients (Fig 4), in three of them it was Marjolin ulcer.

Psychological assessment was conducted in 70 patients after exclusion of children (table 3). Seven (24.2%) patients showed no evidence of depression but 20 (28.6%) had mild depression, 30 had moderate depression 21(70%) of the later were females. Three (4.3%) female patients had severe depression.

<table>
<thead>
<tr>
<th>State of depression</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>No depression</td>
<td>17(24.2%)</td>
</tr>
<tr>
<td>Mild depression</td>
<td>20(28.5%)</td>
</tr>
<tr>
<td>Moderate depression</td>
<td>30(42.8%)</td>
</tr>
<tr>
<td>Severe depression</td>
<td>03(04.5%)</td>
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Discussion

In this study females were slightly more affected. This is similar to other reports. However, more children below age of ten years were affected indicating a major problem for domestic safety, probably due to illiteracy.

The aetiology of burn always reflects the community habits. The cause of major burns in adults in this study contrasts reports from...
developed world where electrical burn dominates. In 96% of patients the burn surface area was less than 50%. This is similar to other reports and could be due to the high mortality when burn goes beyond this limit.

Post burn complications are directly related to the severity of the burn and their management. This is true in this study as more than half of the affected population suffered initially from >30% surface area burn yet survived as a result of good resuscitation to develope late complications of burn injury.

In the developed countries burn patients are directly dealt with in specialized burn units where management advocates early excision, skin graft and physiotherapy. This has improved the outcome over the years. In contrast, patients in this study were treated conservatively and none of them were skin grafted or had had physiotherapy.

Systemic antibiotics were used in all patients but these should not be relied upon because drug penetration in the tough eschar tissue is minimal and development of resistance is high. Topical antibiotics are more effective and decrease the patient morbidity by fifty percent.

The rates of hypertrophic scars and contractures in this study were 75% and 37.5% respectively. The latter was associated with disabilities. This is due to the conservative approach adopted in management of such patients. In comparison a major study from India reported that ten% of patients had impairment of function and one % had complete disability. Pigmentation changes were seen in 90% of patients. This could have improved with skin grafts. Chronic ulcer was found in 6.20% of patients, three of them were malignant. This figure is higher than the reported rate of malignant change which was reported as 0.32-0.78% in chronic scars after burn injury. The relatively high rate of malignant change in this study could be explained by the lack of early excision and grafting.

All adult patients were assessed psychologically. 71.4% of the affected female patients developed mild to moderate depression, while 4.3% were severely depressed. This may be due to the burn trauma and the scaring result as a consequence which could have been less with active excision and grafting management.

Conclusion

Conservative management of burns is associated with wound complications in all children, 75% of adults and disability in 27% of patients in this study. Malignant transformation in burn scars was seen in 2.6% of patients. Seventy percent of patients showed evidence of mild to moderate depression.

References
