

THE magnitude of the burn problem is well known; a burn is one of the most severe types of injuries the human body encounters. A 20% full — thickness burn produces a physiological injury as severe as having both legs crushed by a train.

Certainly, all those who treat burns will realize the fact that there are few other injuries with problems as difficult to manage as those resulting from a severe burn.

The care of patients with severe burns is Complex, expensive and tedious. Months of hospitalization may be necessary during the acute phase. Reconstructive surgical procedures are often multiple and protracted over several years. Education, employment and other activities are thus seriously interfered with. Fatality rates in severe burns are still high. Many survivors are subsequently unable to fill a productive role either because of permanent physical disability or because of the psychological incapacity that attends their disfigurement.

Cancer and degenerative diseases cause more deaths than burns, but those ills generally affect older persons, whose economic or intellectual contributions to family and society have already been made. In other words, the cost to society, both human and economic, of thermal injuries is difficult to accurately define from mere mortality or morbidity statistics.

STATISTICAL REPORT OF BURNS IN BAHRAIN :

During the period from December, 1979 to May, 1980, 72 patients were admitted with thermal injuries. Of this number 45 (62.5%) were males (Table 1).

The Burn Problem in Bahrain

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TABLE (I)

Sex Incidence in 72 Patients

Sex	No.	%
Males	45	62.5
Females	27	37.5

48.6% were caused by flames and 41.7% by scalding. Electrical and chemical burns showed lower percentages; 5.6% and 4.2% respectively (Table 2).

TABLE (II)

Causes of Burns in 72 Patients

Cause	No.	%
Flame	35	48.61
Scald	30	41.67
Electric	4	5.56
Chemical	3	4.17

Table 3 shows the number of patients of each age group. After the age of 29 the number of patients started to decrease gradually to reach the minimum of one patient at the age of 60. Under the age of 10, 30 patients were admitted, mostly due to Scalds (25 patients out of 30). Above the age of 10, flames were found to be the most common cause (Table 3).

As regards to the surface area burnt (SAB) the patients are grouped into ten groups as shown in Table 4; 56 patients out of 72 had burns with 20% of the surface area burnt. Through the period of study, four patients died, with an overall mortality rate of 5.6%. The percentage of the SAB is found to be related directly to mortality rate (Table 5). Attention must be given to local treatment and the nutrition of the patient. During the 14th to 21st post-burn days, the progress of treatment can be judged, because superficial and partial thickness burns should have healed by then. In deep burns the eschar will start to separate leaving behind a raw area which must be grafted. All efforts must be made to prevent infection in burn patients, because infection is still the most serious single complication in this type of injury. Coverage of the raw area

TABLE (III)

Age Distribution in all types of Burns

Age in Years	Scald	Flame	Elec.	Chem.	Total
0 - 1	3	—	—	—	3
1 - 2	6	2	—	—	8
2 - 3	6	2	—	—	8
3 - 5	7	1	—	—	8
5 - 9	3	—	—	—	3
10 - 19	1	7	—	—	8
20 — 29	4	12	1	1	18
30 - 59	—	10	3	2	15
60 & over	—	1	—	—	1

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left after escharectomy is and will remain a major target for those who treat burn wounds. In severe

TABLE (IV)**Surface area Burnt in the Four Types of Burns**

S.A.B.	Scalds 0 - 9	Flame 16	Elec. 11	Chem. 2	Total 3
32					
10 - 19	11	11	2	—	24
20 - 29	3	4	—	—	7
30 - 39	—	—	—	—	1
40 - 49	—	3	—	—	3
50 - 59	—	1	—	—	1
60 - 69	—	1	—	—	1
70 - 79	—	1	—	—	1
80 - 89	—	1	—	—	1
90 - 100	—	1	—	—	1

TABLE (V)**Relation between Mortality (d) and Surface Area Burnt (Sab) in various types of Burns.**

S.A.B.	Scalds No. D	Flame No. D	Elec. No. D	Elec. No. D	Total No. D
0 - 9	16 -	11 1	2 -	3 -	32 1
10 - 19	11 -	11 1	2 -	-	24 -
20 - 29	3 -	4 -	-	-	7 -
30 - 39	- -	1 -	-	-	1 -
40 - 49	- -	3 -	-	-	3 -
50 - 59	- -	1 -	-	-	1 -
60 - 69	- -	1 -	-	-	1 -
70 - 79	- -	1 1	-	-	1 1
80 - 89	- -	1 1	-	-	1 1
90 - 100	- -	1 1	-	-	1 1

burns the patients' life will depend on coverage of the wound as early as possible with a graft. In Bahrain we have started to use pig skin (Corethium II) to cover the raw area temporarily until auto-grafting becomes possible.

The introduction of the mesh graft dermatome has been an important advance in the coverage of burn surfaces. It is used routinely in all our extensive raw areas. Early excision and grafting of limited burn surfaces, especially

those caused by chemical or electrical injuries, is now widely practised.

The use of the "tangential excision" method, a new concept of early excision and grafting was also introduced.

MANAGEMENT OF BURNS

The patient's history is extremely important in the management of a burnt patient. One should find out the nature of the burning agent and whether the

injury occurred in an enclosed space, as well as the type of clothing that was involved.

A brief physical examination must be carried out before management lines are started.

A severely burnt patient may rapidly go into a state of shock, and it is the recognition and management of this condition which is the surgeon's most urgent duty during the first few days following the injury. Immediately on admission, an estimate is made of the total percentage of the area burnt according to the Rule of 9 (2). This includes all the burnt area except for the surrounding erythema. If the total percentage area involved is found to be 15% or more in adults, or 10% or more in children, infusion with plasma must be started at once, and the amount of transfused fluids are calculated according to Evan's Formula (3).

During the shock period no attention is given to local treatment except for circumferential burns, where an escharotomy may be necessary.

After the shock period has passed, the method introduced in Yugoslavia by Janzekovic (4) and adopted by several burn centres in Europe and the United States is used. The procedure consists of removing the necrotic tissue down to the bleeding layer and then providing immediate coverage with skin autograft.

THE BURN UNIT

The design of a burn unit should take into consideration all the phases a patient has to go through, and provide necessary accommodations for them. Infection with pathogenic organisms is one of the most serious problems. A number of patients will be admitted with

their burns already infected, and others will acquire infection in the burn unit. A well-designed burn unit should minimize this fatal problem by adequate facilities.

The Burn Unit in the Salmaniya Medical Centre is actually a general surgical ward and it lacks the fundamental facilities of a modern burn unit. It is located between two other general surgical wards and is frequently used as a traffic route between the two wards for hospital staff and relatives of patients. Isolation and infection control is therefore impossible without strict visitors schedule.

One of the important features our burn unit lacks is a dressing station which should include a hydrotherapy Unit with a mechanical hoist and a large area where major dressings can be done. The burn unit also lacks some of the modern engineering features such as special beds as the Levitation Bed, which not only surrounds the patient by a micro-climate of controlled air, but also gives even support to the body. One of the modern air-engineering techniques which should be used is to provide positive-pressure air inside the burn unit to prevent entry of air from outside.

There is also a lack of specialised physiotherapists with experience in rehabilitation of burn patients. As has been mentioned earlier, the patients usually go through depression, and this makes psychotherapy an essential part of the treatment. It is known through experience that a television, radio system, books, magazines, etc. frequently prevent boredom of burnt patients and lift their morale.

SOLUTION TO THE BURN PROBLEM : PREVENTION

It is well known that the greatest advances in medicine evolved

through prevention. There is no vaccine for burn prevention, just as there is no cure for the burn scar, regardless of the lines of reconstructive surgery.

Prevention of burns and their complications should run along three channels :

I. Prevention of occurrence through :

1. General Measures :
 - a. Safety precautions by law
 - b. Public Education.
2. Measures designed for the prevention of specific risks in children, elderly epileptics. etc.

II. Prevention of death through efficient and most upto date management.

III. Prevention of Complications through proper management with the aid of physiotherapy and psychotherapy.

SUMMARY

Serious burns are caused by flames and burning fabrics clothings. Males are the largest group of burn victims in Bahrain as well as those below the age of thirty years. These facts present a serious problems to society, in terms of affecting a productive sector of the population.

Under the age of ten, scalding is the most common cause of burns, while flames are the most common for people above the age of ten. Industrial burns are rare because of the relative lack of the type of industry where such burns are likely to occur.

Burn can be prevented through organised Public education, utilising Communicational channels.

Management must be established using upto date lines.

ACKNOWLEDGEMENT

I would like to thank the Consultants of Dept. of Surgery for their encouragement and permission for publishing this paper.

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