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Epidemiology of Burns at SMS Hospital Jaipur: Over a Period of 3 Years

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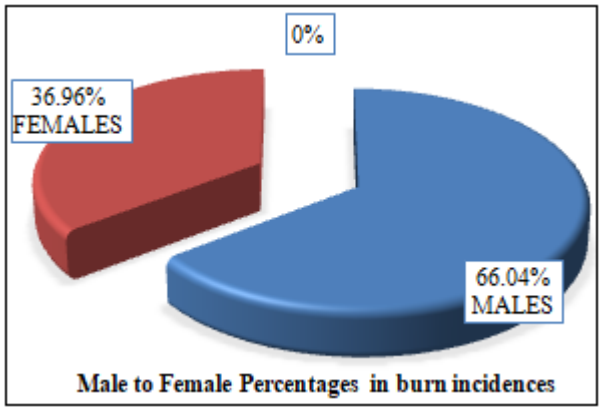
Abstract: ***Introduction:*** *A Burn is defined as an insult to body's tissues resulting from heat, chemical, electricity, sunlight or radiation. Scald burns occurring due to hot liquids, steam and gases formthe most common mode of burns. Besides saving lives, the ultimate goal in burn management is early and complete healing of wounds leading to good cosmetic and functional results.* ***Material and Methods:*** *This is a retrospective study done atDept Of Burns &Plastic Surgery SMS Medical College and Hospital, Jaipur, Rajasthan over a period of three years (jan 2017- dec 2019).A total of 5241(Five thousand two hundred forty one) burn patients were admitted to the department which included all forms of burn injury.* ***Result:*** *Out of 5241 burn patients, 1220 patients suffered by Electrical burns (23.27%), 3200 suffered by flame burns (61.06%) and 412 suffered by scald burns (7.86%)and remaining 9 patient were suffered by chemical burn. 4113 patients were of the age group 11-40 years (78.5%). Of 5241, 3304 were males (63.04%),1937 were females (36.96%) of all burn admissions.* ***Conclusion:*** *Our study concludes that the most common mode of burn injury is flame and electrical burn. With this study we want to send the message to publicthat prevention is better than cure in burn injuries.*

Keywords: Epidemiology of burns, flame burn, electrical burn

1. Introduction

A burn injury is defined as insult to body's tissues from heat, electricity, chemicals, sunlight or radiation. The most common of them is scald burns occurring due to hot liquids, steam and gases. Burn can be classified in to four types as follows, First degree burn-involve only the epidermis, Second degree burn-involve the epidermis and upper part of dermis, third degree burn-involve the epidermis, entire dermis and may or may not involve subcutaneous tissue, Fourth degree burn- involve the deeper structurelike bones, muscle and tendons. Burns can cause pain, swelling, blistering, redness, charring, scaring and in extensive cases shock and even death. Infection can occur as a result of damage to protective barrier of skin. Treatment mainly depends on the three mainfactors namely cause of burn, its extent (i.e. percentage of burns) and its depth. Patients with extensive deep burns frequently dieand those with lesser injuries, physical recovery is gradual and painful with development of burn sequelae. Our aim in burn patients management is proper healing of the wound atearliest , so that patient achieves good cosmetic and functional result and resume his/her duties.

Figure 1: Hot Water burn in a 3 year child



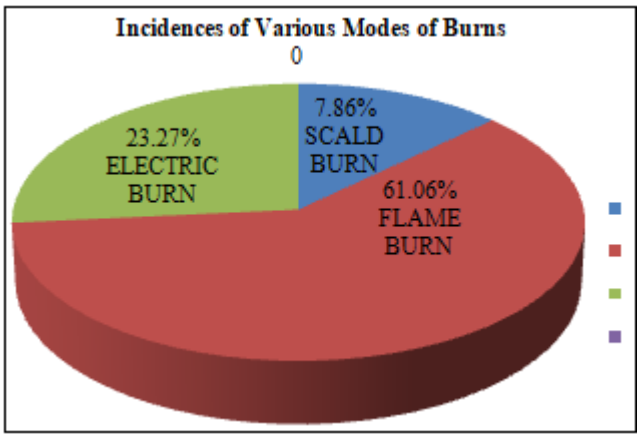
Social characteristics

The age of the burn patients ranged from 0 (Zero) to greaterthan 60 years. Most of the patients (78.5%) were between 11 and 40 years of age. Males predominated, with an incidence of 63.04% (3304), compared to female incidence of 36.96% (1937)cases of total 5241. The reason for this might be due to the larger malepopulation in our study and greater exposure to professional hazards. (Figs. 2, 3),[Table: 1].

Age Group	Total Patients	Male	Female
<10 yrs	520	212	308
10-40yrs	4114	2756	1358
41-60yrs	357	240	117
>60yrs	250	96	154

Aetiology of the burns

History elicited from the patients revealed that the majority of flame and scald injuries occurred at home and electric burns occurred at workplace. In more than three fourth (3837 of 5241) of the cases, domestic cooking, stove, choollah etc were responsible for the flame and scald burns. Flame was the commonest of burn injuries (3200 of 5241) which comes out to be 61.06 %).In scalds the commonest causative agent was boiling water, followed by cooking oil and milk.



Clinical assessment

Most cases admitted were second-degree superficial or deep burns, using the rule of nine, of 10-40% of the total body surface area. The burn agent was significantly associated with the degree, depth, and severity of the burn wound.Flame burns usually caused mixed second- and third degree, deep, and severe burns. The sites most commonly affected were the face, upper extremity and upper trunk followed by the lower extremity.

2. Discussion

Epidemiological studies have played an important role in burn prevention, and its knowledge helps in appropriate selection of target groups for preventive action. The common reasons listed are lack of education, overcrowding and an unsafe cooking habits. Southeast Asia accounts for roughly sixty percent of fatal burn cases around the world with a rate of 11.6 per 1lac.The external sources causing burns are classified into: thermal (heat related), chemical, electrical and radiation. In the developed world the common cause of burn are flame (44%), scalds (33%), hot objects (9%), electricity (4%), and chemicals (3%). Majority of burn injuries occur athome (69%) or work (9%), mostly accidental in nature and occasionally homicidal (2%) or suicidal (1-2%).The lower socio-economic strata are more commonly affected by burn injuries. In india, incidence of burn injury per year is approx. 7,00,000 to 8,00,000 with highest incidence in women of age group 16-35 year of age.The high incidence in women of 16-35 years of age group is related to unsafe kitchens and loose fitting clothing typical of India.Age and sex are important epidemiological determinants for injuries, including burns. The present study revealed that nearly three of four of the patients were aged 10-40 years, while those at age> 60 years represented 2% of the cases. The high incidence among young adults can be due to the fact that they are generally active and exposed to hazardous situations both at home and at work. Male population proved to be at greater risk of sustaining burn injuries. Flame burns (no. 3200/61.05%) were the commonest agent, followed by electric (no. 1220/23.27%) and scald burns (no. 412/7.86%). Kerosene and petrol were found to be commonest flammable liquids.

In the present study, a significant association was found between age and the burn injury agent. Most scald burns occurred in the age group less then 10 years and were due to boiling water. The incidence of electric burn was around 23 % which were mainly caused by ignorance, non-compliance with rules and regulations, and the lack of safe work practices.

Prevention programs and measures play a major role in significant reduction of rates of serious burns. A variety of preventive measures which can be undertaken include limiting water temperature, smoke alarms, sprinklers, improved construction of building and fire resistant clothings. Scald burns can be prevented by using thermometer to measure both water temperature and splash guards on stoves. Firework injuries can be prevented by strict adherence to government rules regarding its manufacture and sale.

3. Conclusion

Burns in most of the cases can be prevented. Public awareness is the mainstay method to achieve this.This can be done by proper advertisement and involvement of electronic and print media to make people aware of it. The government should take decisionsregarding educating public and to provide medications at subsidized rates for the patients so that they can be treated without cost factor coming in between. The plan of free drug and food supply for the patients has been implemented in our state and patients are extremely benefitted. Hence every state govt should try to educate peopleto prevent themselves from this unfortunate injury and adequate treatment should be available in such cases.

References

[1] Clark W.R, Fromm B.S. Burn mortality Experience at a regional burn unit and literature review. ActaChir. Scand. (suppl.) 1987;537:1–126.
[2] Elberg J.J., Schroder H.A., Glent-Masden L., Hall K.V. Epidemiology and the effect of a prevention programme. Burns. 1987;13:391–394.
[3] Lyngdorf P. Epidemiology of severe burn injuries. Burns. 1986;12:491–495.
[4] Silverstein P., Lack B.O. Epidemiology and prevention. In: The Art and Science of Burn Care. In: Boswick J.A., editor. Aspen: 1987. pp. 11–19
[5] Epidemiological Survey of Burn Victims Treated as Emergency Cases in our Hospital in the Last Five Years O. Castana, G. Anagiotos, [...], and D. Alexakis
[6] Herndon D (ed.). Chapter 4: Prevention of Burn Injuries. Total burn care (4th ed.). Edinburgh: Saunders. p. 46.
[7] Peck, MD. Epidemiology of burns throughout the world. Part I: Distribution and risk factors. Burns: journal of the International Society for Burn Injuries 2011;37:1087–100.
[8] Ahuja, RB; Bhattacharya, S. Burns in the developing world and burn disasters. BMJ (Clinical research ed.) 2004;329: 447–9.
[9] Gupta. Textbook of Surgery. Jaypee Brothers Publishers. 2003;p. 42.
[10] Burns in low- and middle-income countries: a review of available literature on descriptive epidemiology, risk factors, treatment, and prevention. Burns: journal of the International Society for Burn Injuries 32: 529–37.

[11] Lozano, R. Global and regional mortality from 235 causes of death for 20 age groups in 1990 and 2010: a systematic analysis for the Global Burden of Disease Study 2010. Lancet 2012;380:2095–128.
[12] Herndon D (ed.). Chapter 3: Epidemiological, Demographic, and Outcome Characteristics of Burn Injury. Total burn care (4th ed.). Edinburgh: Saunders. p. 23.
[13] Marx, John. Chapter 60: Thermal Burns. Rosen's emergency medicine: concepts and clinical practice (7th ed.). Philadelphia: Mosby/Elsevier 2010.
[14] Jeschke, Marc. Handbook of Burns Volume 1: Acute Burn Care. Springer. 2012; p. 46.