

Clinico-Epidemiological Profile of Burn Cases Admitted to a Tertiary Care Hospital in Allahabad

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ABSTRACT

Introduction: Epidemiological studies are necessary for effective planning for reduction of burn injuries in India. Therefore aim of present study is to study the clinico-epidemiological profile of burn cases admitted in a tertiary care hospital in Allahabad.

Material and Methods: In present study, cases of burn accidents and post burn deformities of various types admitted in emergency and plastic and burn units, PG department of Surgery, M.L.N. Medical College of S.R.N. Hospital, Allahabad, during one year period has been included.

Results: Most common age group involved was between 20-50 years. Majority of cases were female, from lower socio-economic groups and illiterate. 92% cases belonged to thermal burn, 4% electrical burn and 4% chemical burn. Maximum cases (80%) of acute burn reported to the hospital within 24 hours and rest cases after 24 hours.

Conclusion: Burns are preventable injuries and can be prevented by various preventive measures like awareness by media and television especially before festivals like Dipawali.

Keywords: Socio-Demographic, Epidemiological, Lower Socio-Economic Group, Burn Injuries

INTRODUCTION

Burn is a tissue injury in which there is coagulative necrosis of the tissue from thermal application or from the absorption of physical energy or chemical contact. The causes of burns vary from one part of the world to another, depending on local customs with respect to use of fire. Burns occur frequently in India because of small open cooking stoves in common use; molten metal burns occur frequently in certain specialized industrial areas.

Burn injuries are the major cause of morbidity and mortality in India. About 10 lakh people are affected by burn injuries every year.¹ Prognosis of disease depends upon various factors like awareness among general population, cost of medical care and availability of doctors and medical facilities to take care of burn wounds.²

In India, mortality due to burn injuries is more common in female in comparison to male in India and manner of injury i.e. accidental or non-accidental (suicidal or homicidal) is unclear.³ Burns not only leads to physical disabilities but also cause social stigma and discrimination. Various strategies have been implemented by developed countries for reduction of burn related deaths.

The majority of patients receive injury from direct contact with flash or flames. Flame injury is most often caused by house fire or ignition of clothing. Flammable clothing,

the use of open fire for heating, the use of gasoline and kerosene for cleaning purposes to start fire, carelessness with cigarettes and small children playing with matches have accounted for majority of accidents in homes. In some instances, alcoholism and epilepsy are etiologic factors.

The cause and risk of burn injury as well as risk of burn death are influenced by age, economic circumstances, geographic location, season of the year and occupation. The risk of burn injury and fire death are greatest in very young, the elderly and in winter months.

Socio-demographic and epidemiological studies are necessary for effective planning for reduction of burn injuries especially among high risk groups. Therefore aim of present study is to study the clinico-epidemiological profile of burn cases admitted in a tertiary care hospital in Allahabad.

MATERIAL AND METHODS

In present study, cases of burn accidents and post burn deformities of various types admitted in emergency and plastic and burn units, PG department of Surgery, M.L.N. Medical College of S.R.N. Hospital, Allahabad, during one year period has been included. Informed consent and approval from Institutional Ethics Committee was taken. After admission of the patient, first of all necessary resuscitative measures were carried out according to requirements of particular case. After reviving and stabilizing the patient, a detailed clinical examination was carried out. It includes registration of cases for hospital records and medico legal purposes, history, general examination, systemic examination etc. Local examination includes extent of burn, depth of burn, parts of body involved and contamination of wound. Routine and special investigations were done and treatment was started as per protocol. Photographs of patients were taken pre and post management in cases of burns admitted in emergency and pre and post operatively in cases where operation was done to compare the results and for documentation.

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Baseline Characteristics	Numbers (%)
Age group (Years)	
0-12	24 (0.09)
12-40	214 (79.6)
>40	28 (1.05)
Gender	
Male	72 (27.06)
Female	194 (72.93)

Table-1: Baseline demographic characteristics of burn cases (n=266)

Etiology, extent and depth of burns	Table: 2 Etiology, extent and depth of burns (n=266)
Etiology	
Scald	5 (1.87%)
Dry Heat	245 (92.1%)
Electric	8 (3.0%)
Chemical	8 (3.0%)
Extent of Burn	
Mild (10-25%)	38 (15.2%)
Moderate (26-50%)	42 (16.8%)
Severe (51-100%)	160 (64%)
Depth of Burn	
Uniform partial thickness	30 (12%)
Mixed (Both partial and full thickness)	220 (88%)

Table-2: Etiology, extent and depth of burns (n=266)

RESULTS

This study has been undertaken on about 266 cases of burn injuries, ranging from 10 to 100% of total body surface area from January 2003 to January 2004 who underwent management of shock and burn wound care & reconstruction of post burn deformity of various types.

On analysis, above table, indicates predominance of sufferers due to burn injury in the active age group of life i.e. 12-40 years. In present study, females outnumbered males, by 45% as evident by table-1.

On analysis of table-2, it is clear that mode of injury in maximum number of cases was dry heat i.e. 90%. In pediatric age group, scalds contribute to 80% of cases. Majority of patients (64%) admitted in our hospital have severe burn injuries involving 50-100% of total body surface area.

DISCUSSION

Burn injury is a major socio-economic problem besides being a health hazard. Most of the burn injuries occur in low and middle income countries including India and almost 50% of these cases happen in South and South East Asian Region.¹

Davis (1990) quoted two million injuries per year for the Indian subcontinent, but it could be more. Burn injuries are more common in the poor socio-economic group of the society with poor housing, overcrowding and a low level of education (Sawhey 1989). Epidemiological factors however vary in different regions because of diverse cultural characteristics. The incidence is higher in poor and illiterate

population belonging to low socio-economic status showing their ignorance and lack of proper knowledge to the use of gas chulhas, stoves, kerosene lamps, live household electric wires and inability to observe the safety measures making them more vulnerable to burn injuries.

The lack of facility for transportation, management, physical and economic rehabilitation of the victim increases the magnitude of the problem and lead to burn crippled with physical, psychological and social disabilities.

The incidence of burn has increased in our country and thus has affected all the age groups. The youngest patient was a 6 month old male infant who was hospitalized after 4 hours of thermal injury and who died within 30 minutes of hospitalization due to shock. The oldest patient admitted was 72 years of age. The highest incidence was found in the age group 18-40 years which is rational because this is the working age group of male and female having higher exposure to hazards. Similar results were found in studies^{2,4} done in various part of the country.

Burn injuries are more common in females as compared to males and in the present study of 266 cases, females (72.9%) cases dominated to males (27.1%). Similar results were also reported by various authors⁵⁻⁸ in different part of the country whereas different results (male predominance) were found in various other studies⁹⁻¹¹ Since females being housewives passes more time in kitchen so they are more prone to thermal burn injuries while males being more involved in occupations and outings so they are more prone to electrical burn injuries.

Thermal injuries are more common as compared to electrical and chemical injuries. Most of thermal injuries are accidental and occurs in kitchen with floor level cooking on kerosene, pressure stoves or open fires. In the present study, thermal injuries account 92% of cases (stove and kerosene lamps 60%, hot fluids 10%, gas chulhas and open hearth fire 22%, electric short circuit 4% and chemical acid burn 3.5%). Out of 39 cases which we managed, cases of thermal burn were more (23 cases) as compared to electrical (8 cases) and chemical (8 cases). Studies conducted by Kumar et al.¹² and Gupta et al.¹³ have shown that higher proportion of burn injuries are due to flames.

The duration of injuries (from the time of burn injuries till the time when definitive treatment could be started in the hospital) in this study varied from 6 hours to more than a week for burns admitted in emergency. Maximum number of cases was admitted after 8-16 hours of burn injury. This is in contrast to shorter time duration observed by workers in developed countries. On the other hand patients of post burn deformities of various types (developed within 2-5 years of burn injuries) were admitted for corrective surgery. This delayed arrival in hospital is the major problem encountered in the developing countries like ours, but even then we have tried to adopt an approach to save the life of individuals and post burn deformities.

CONCLUSION

In present study main age group involved was between

20-50 years. Majority of cases were female, from lower socio-economic groups and illiterate. 92% cases belonged to thermal burn, 4% electrical burn and 4% chemical burn. Maximum cases (80%) of acute burn reported to the hospital within 24 hours and rest cases after 24 hours. 65% cases died within 1-3 weeks due to shock, renal shutdown or respiratory distress syndrome. About 19% of cases absconded most likely due to fear of medico-legal problems after death, unsatisfactory and unhygienic conditions of burn units of medical college hospital.

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