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Research Article

Clinico-epidemiological profile of burns cases admitted to a tertiary care hospital in a coastal area of South India

Bhagawan B. Darshan[1]*, Ramesh Holla[1], Shashidhar Kotian[1], Bhaskaran Unnikrishnan[1], Sagar Ballal[2], Rekha Thapar[1], Prasanna Mithra[1], Nithin Kumar[1], Vaman Kulkarni[1], Avinash Kumar[1]

[1]Department of Community Medicine, Kasturba Medical College (Manipal University), Mangalore, Karnataka, India
[2]Undergraduate Medical Student, Kasturba Medical College (Manipal University), Mangalore, Karnataka, India

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***Correspondence:**
Dr. Bhagawan B. Darshan,
E-mail: drdarshanbb@gmail.com

ABSTRACT

Background: Globally, approximately 2.5 lakh deaths occur every year, with majority of cases from low and middle income countries. Burns is one of the major cause of mortality and morbidity in India with around a million people affected by burns every year. This study has been aimed to study the socio-demographic profile of burn patients and also to evaluate the etiology, manner, and circumstances of occurrence of burn injuries along with their outcome.
Methods: This record based retrospective study was conducted Kasturba Medical College, Mangalore Records were analyzed and information related to socio-demographic details, etiology of burns, place of burn, manner of burns were extracted. Data was entered and analyzed using SPSS version 11.5.
Results: The study included 154 participants. Majority of the participants were in the age group of 21-30years (n=50, 32.5%) followed by 31-40 years (n=35, 22.7%).More than half of the participants were females (n=84, 55%). When the etiology for burns were analyzed most of the cases were due to scalds (n=64, 41.5%) followed by flames (n=n=58, 37%). More than three fourth of the burn cases were accidental in nature (n=128, 83.1%) followed by suicidal burns (n=22, 14.2%)
Conclusions: Even in the era of technological advancement burns still remains as a major issue of concern in most of the developing countries including India. It predominately involves the population from productive age group especially females mainly accidental in nature.

Keywords: Burns, Mangalore, Profile

INTRODUCTION

Fire was discovered accidentally by mankind around 40000 years ago. It is an ancient belief that fire is one of the five essential elements of life along with Pritvi (earth), Jal(water), Aakash (sky), Vayu (air).[1] The use of fire by man has not only benefitted him but has also harmed him by increasing the chances of injuries and or sometimes causing death. With respect to etiology, burns are classified as flames, scalds (hot liquids), contact burns.[2] It may be accidental or otherwise. Non-accidental burns may be due to deliberate self-immolation (attempted suicide) or due to assault (attempted homicide).[3]

Globally, approximately 2.5 lakh deaths occur every year, with majority of cases from low and middle income countries. Burns is one of the major cause of mortality and morbidity in India with around a million people affected by burns every year.[2] Lack of doctors and medical facilities to take care of burn wounds, decreased

awareness among general population and rising cost of medical care has major impact on prognosis of the disease.[4] In India, mortality due to burns is more common in female gender than in male gender and occurs against a complex background in which the cause - accidental or non-accidental, suicidal or homicidal is unclear.[3]

Burns is one of the major preventable tragedy. It is more tragic because it not only leads to physical disabilities but also cause social stigma and discrimination Considerable headway has been made in developed countries to reduce burn related deaths by adopting appropriate preventive strategies and care of burn patients. Similar progress is not seen in developing countries.[2] Epidemiological studies in every surrounding is a must for effective planning and betterment of burn injury preventive measures to negate the devastating effects of this unnecessary evil in all the age groups and the various occupations which are at a high risk. This study has been aimed to study the socio-demographic profile of burn patients and also to evaluate the etiology, manner, and circumstances of occurrence of burn injuries along with their outcome.

METHODS

This record based retrospective study was conducted in hospitals affiliated to Kasturba Medical College, Mangalore located in the coastal part of South India. It acts as a referral centre for the neighboring districts. All cases related to burns irrespective of age and manner of burns admitted to the above mentioned hospitals in 2014 (January 01, 2014 to December 31, 2014) were included in the study. Ethical approval was obtained from Institutional Ethics Committee (IEC) of Kasturba Medical College, Mangalore before commencement of the study. Permissions were also obtained from the medical superintendents of the respective hospitals. Records were analyzed and information related to socio-demographic details, etiology of burns, place of burn, manner of burns were extracted. Data was entered and analyzed using Statistical Package for Social Sciences (SPSS version 11.5, SPSS Inc., 233 South Wacker Drive, 11th floor, Chicago, IL 60606-6412). Results are expressed in the form of percentages and represented in tables.

RESULTS

The study included 154 participants. Majority of the participants were in the age group of 21-30 years (n=50, 32.5%) followed by 31-40 years (n=35, 22.7%).More than half of the participants were females (n=84, 55%) and they predominated males in a ratio of 1:0.8. More than three fifth (n=109, 70.8%) of the victims were married. Most of subjects were Hindus (n=137, 89%) followed by Muslims (n=13, 8.4%) and Christians (n=04, 2.5%) as shown in Table 1.

When the etiology for burns were analyzed most of the cases were due to scalds (n=64, 41.5%) followed by flames (n=n=58.37%). Rescue burns accounted for the least (n=02, 1.3%).Most of the victims suffered burns at home (n=138, 89.6%).More than three fourth of the burn cases were accidental in nature (n=128, 83.1%) followed by suicidal burns (n=22, 14.2%) as noted in Table 2.

Figure 1 shows that as the percentage of TBSA (Total Body Surface Area) affected by burns increases the mortality rate increases. Survival rate is 100% in victims in whom TBSA affected was less than 15% and mortality rate was 100% who suffered more than 85% of burns.

Table 1: Baseline socio-demographic characteristics of study participants (n=154).

Baseline characteristics	Number (%)
Age (years)	
<10	18 (11.7)
11-20	17 (11.0)
21-30	50 (32.5)
31-40	35 (22.7)
41-50	17 (11.0)
51-60	10 (06.5)
>60	07 (04.5)
Gender	
Male	70 (45.0)
Female	84 (55.0)
Marital status	
Married	109 (70.8)
Unmarried	045 (29.5)
Religion	
Hindu	137 (89)
Muslim	13 (08.4)
Christian	04 (2.5)

Table 2: Etiology, place and cause of burns (n=154).

Etiology, place and cause of burns	
Etiology	
Scald	64 (41.5)
Flame	58 (37.0)
Electrical	06(03.9)
Rescue burns	02 (01.3)
Chemical	24 (15.5)
Place	
Home	138 (89.6)
Workplace	003 (01.9)
Outdoor	003 (01.9)
Unknown	010 (06.5)
Manner	
Accidental	128 (83.1)
Suicidal	022 (14.2)
Homicidal	002 (1.29)
Unknown	002 (1.29)

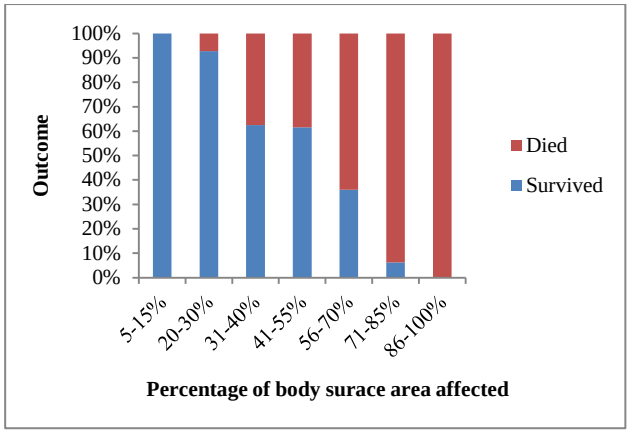

Figure 1: Outcome of the patients with Total Body Surface Area (TBSA) affected by burns (n=154).

DISCUSSION

Most of the injuries related to burns occur in low and middle income countries with almost half of these cases occurring in south East Asian Region.[2] The study included 154 burn case victims and assessed their demographic and epidemiological details. Females predominated males in the ratio of 1:0.8. Similar findings have been observed in studies conducted at different parts of the country[5-7] whereas the studies conducted in northern part of India, Jaipur and Singapore has shown male predominance.[8-10] Female predominance in our study can be due to nature of household work with which they are associated and might be related to dowry deaths.

When age distribution of burn victims was assessed it was noted that more than half of the victims were in the age group of 21-40 years which is corroborated by the studies done at Northern states of India.[1,4] Higher incidence in this age group is explained by the fact that they are generally more active and exposed to hazardous atmosphere at home and at work.

Most of the victims in the present study were laborers. Similar observations have been made in a study conducted in Sevagram.[11] It was evident from our study that more than three fourth of the burn victims were Hindus which is in line with findings of the studies conducted at central[11] and northern parts of India.[3] The basis for the above findings may be because of the rituals and religious customs practiced by the Hindus involves the usage of fire.

More than four-fifths of the burn incidents occurred at home followed by workplace in the present study which is in conformity with the findings of a study conducted by Nithin et al. in coastal part of southern India.[12] whereas a study conducted at Delhi has shown lower proportion of burn incidents at home when compared with that of the above findings.[13] In contrast to the studies conducted at Gujarat and Maharashtra where maximum burn cases were reported from the rural area, the present study shows that maximum cases are from urban area.[1,14]

When the etiology for burns in the present study was analyzed it was evident that scalds due to hot oil or hot water and flames were the most common cause. Studies conducted by Kumar et al. and Gupta et al. have shown that higher proportion of burn injuries are due to flames.[12,15]

Mortality was very high in burn victims aged more than 60 years whereas the children aged less than ten years has very good prognosis. There is a definite decline in survival rate due to burns as age advances. This is in conformity with the findings of the study conducted in Iran and Karachi.[16,17] There is a decline in the self-repair mechanism of the body tissues as the age increases due to slowing down the metabolic process ultimately leading to complications and mortality.

Prognosis becomes worse with an increase in the total body surface area affected by the burn injuries. In cases where the TBSA is, 15% the survival rate is 100%. However with a TBSA>86% mortality was 100%. The above findings have been confirmed by the observations of the present study. Similar observations were noted in studies done at Karachi and in central part of India which have reemphasized the correlation.[11,17]

More than three fourth of cases were accidental in nature in the present study followed by the suicidal burns. Similar findings were reported from studies conducted across the country.[12,18] In contrast a study conducted in Kashmir observed that maximum number of burn cases were accidental in nature while a study conducted in Bhuj showed that around a fourth of cases were suicidal in nature.[1,8] Most of the suicidal cases are reported as accidental to elude penalties and legalities which may be one of explanation for more number of accidental cases.

CONCLUSION

Even in the era of technological advancement burns still remains as a major issue of concern in most of the developing countries including India. It predominately involves the population from productive age group especially females mainly accidental in nature. As Burns is one of the most neglected and easily preventable causes of mortality and permanent disability, people must be educated regarding the specific safety behavior through multifaceted community programmes which has to be aggressively implemented by the government.

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