



PATTERN OF BURN INJURY AMONG PATIENTS ADMITTED IN A TERTIARY CARE HOSPITAL OF KASHMIR- A RETROSPECTIVE STUDY.

Community Medicine

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ABSTRACT

Introduction: Accidental burns are one of the common causes of mortality and morbidity in the Indian Sub continent. Burn injuries are one of the most devastating conditions encountered in medicine. A majority of the Burn injuries are as such preventable, requiring a better knowledge of epidemiology to implement better medical care and to prevent such accidents. **Methods:** This was a hospital based retrospective observational study wherein data of the burn victims admitted in the hospital for the year of 2017 was evaluated. It was analyzed with respect to the parameters like age group, gender, %of TBSA involved, mode, degree, and cause, among others. **Results:** Scalds were found to be the commonest cause of burn injury. Majority of the victims suffered 3 degree burns. Most of the burns were accidental. There was a slight preponderance of male victims. The most common age group involved was up to 20 years of age. Death occurred in 7.9 % of the cases **Conclusion:** Children and young adults are more prone to burn injury. Scalds are the commonest cause of burns. Most of the burn victims are residents of rural areas. Upper limb was the commonest body site involved. Death rate was highest in burns involving > 60% of TBSA.

KEYWORDS

INTRODUCTION

A burn is damage to your body's tissues caused by heat, electricity, radiation, hot liquids, steam and chemicals.¹ Burns are one of the most devastating conditions encountered in medicine.² Masellis considered it to be the most complex trauma which can strike a human organism.³ Burn is a unique but common mode of suicide as well as homicide worldwide.⁴ Burn injuries are more common in developing countries like India due to various socio cultural factors, namely, illiteracy, poor living and housing conditions, poverty, poor substandard electrical wiring and malpractices like dowry. There is lack of awareness and ignorance regarding burn injuries coupled with difficulty in accessing health care services.⁵

Burns are among the leading causes of disability-adjusted life-years (DALYs) lost in low and middle income countries.⁶ In the world's second most populous country, India, over 1000000 people are moderately or severely burnt every year with one death every 4 minutes due to burn and the most common cause being household injury.⁷

Burns are also a significant cause of mortality and morbidity among infants and children dependent on their caretaker, as they are unable to recognize the hazardous situations leading to burn injury. Burns are the 5th most common cause of non fatal childhood injuries.⁶

As per WHO, an estimated 180000 deaths every year are caused by burns- the vast majority ones in low and middle-income countries.⁶ The estimated annual burn incidence in India is approximately 6-7 million per year, based on data from major hospitals when extrapolated to whole of the country, which is the second largest group of injuries after road traffic accidents.⁸ Nearly 10% of these are life threatening and require hospitalization.⁸ Nearly 1-1.5 lakh people get crippled and require multiple surgeries.⁸ 70% of victims are in the most productive age group of 15-40 years and most belong to low socioeconomic status.⁸ But there is a silver lining to this grim situation in that 90% of all the burn injuries are preventable.⁸

Burns are classified based upon their depth as:-

A first degree burn is superficial and causes local inflammation of skin. The inflammation is characterized by pain, redness and a mild amount of swelling. The skin may be very tender to touch. Sunburns are often characterized as superficial.

Second degree burns are deeper and in addition to the pain, redness and inflammation; there is also blistering of the skin.

Three degree burns are still deeper involving all the layers of skin, in

effect killing that area of skin. Because the nerves and vessels are damaged, three degree burns appear white and leathery and tend to be relatively painless.

In addition to the depth, total area of the burn is significant. Burns are measured as %age TBSA affected. "The Wallace Rule of Nine" is often used in adults but in infants a modification is used.

Mortality rate has been found to be 100% in burns above 60% TBSA, 69% in 41-60% burns and 12% in burns < 40%.⁹ The causes of death are acute renal failure, septicemia, acute respiratory syndrome, shock, upper GI bleeding due to peptic ulcer and severe anemia.¹⁰ The pain and distress caused by a large burn are not limited to the immediate event. As such, the management of burn injury represents a significant challenge to every member of the burn team. A large burn injury will have a significant effect on the patient's family a future.¹¹

Rationale for conducting the study:- Meager data analysis is available regarding the pattern of burn injury in the SMHS hospital Srinagar, which has a separate unit for Burns.

Aims and Objectives:-

1. To study the demographic and clinical profile, treatment outcome of burn patients in Kashmir.
2. To study the prevalence of accidental and suicidal burn cases attended at a Tertiary Care Hospital of Kashmir.

Methods

Study design:- Record based Descriptive study.

Study setting:- Government Medical College, Srinagar Jammu & Kashmir, established in 1959 and presently situated at Karan Nagar, Srinagar.

Duration of study:- October 2018- December 2018

Study population:- Patients admitted in burn unit of SMHS (An associated hospital of Government Medical College, Srinagar), from 1st Jan 2017 to 31st December 2017.

Study instrument:- the data was collected with the help of a Pro-forma framed after the review of literature.

This was a retrospective observational study. Data was obtained from the inpatient files and prescriptions and of the burns patients admitted in the department of surgery SMHS Hospital, Srinagar. The case files and other records were obtained from Medical Record Section after proper permission and were examined to note the demographic details and clinical profile of the patients. The study was taken after taking a

due permission from Institutional Ethics Committee (IEC). Also being a retrospective observational study, consent waiver was also obtained from IEC. A pilot testing was done on about 10% of the cases and some modifications were made accordingly in the pro forma. All the data was entered in MS Excel 2007 for frequency distribution

RESULTS

A total of 265 patients were admitted in burn unit of the department of surgery, SMHS, Srinagar from 1/1/2017 to 31/12/2017. There was a slight preponderance of males (50.2%) over females (49.2%).

Table1- Distribution of burn patients as per their gender and age group

Gender	Frequency	Percentage
Male	133	50.2
Female	132	49.8
Total	265	100
Age group	Frequency	Percentage
0-20 years	120	45.3
21-40 years	103	38.9
41-60 years	34	12.8
>60 years	8	3.0
Total	265	100

The most common age group which was affected was 0-20years i.e., children and adolescents (45.3%), which was closely followed by young adults i.e., 21-40years(38.9%).

Table 2- Distribution of the victims as per their residence.

Residence	Frequency	Percentage
Rural	168	63.4
Urban	88	33.2
Non Local	9	3.4
Total	265	100

A great proportion of the victims belonged to rural areas (63.4%) and the rest belonged to urban areas (33.2%). Scalds were the commonest cause of burns (44.9%), followed by flame burns (31.7%), kerosene/petrol (13.6%) and electric burns (9.8%). Flame burns were more common in females while as Electric burns were more common in males

Table 3- Showing the proportions of various causes of burns suffered by the victims.

Cause	Frequency	Percentage
Flame	84	31.7
Kerosene/Petrol	36	13.6
Electric Burns	26	9.8
Scalds	119	44.9
Total	265	100

Majority of the cases were Accidental (93.6%) ,with only 3.8 % suicidal and 2.6 % homicidal burns. Suicidal burns were more common in females while as homicidal burns were more common in males.

Table 4- showing the %age of various modes of burns suffered by the victims.

Mode of Burns	Frequency	Percentage
Accidental	248	93.6
Suicidal	10	3.8
Homicidal	7	2.6
Total	265	100

Majority of the victims had suffered upto 30% of TBSA burns (83%), and very few(2.3%) had >90% of TBSA burns.

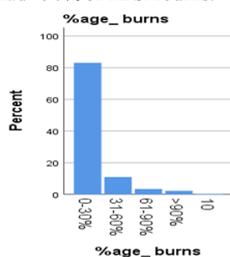


Figure 1- showing percentage of burns

Most of the patients with > 60% burns belonged to the category of young adults group. Burns involving > 60% of TBSA were invariably fatal in all cases. Majority of the patients suffered 3 degree burns (49.8%), followed by 2 degree (41.1%) , while only a few cases had suffered 1 degree burns (9.1%).

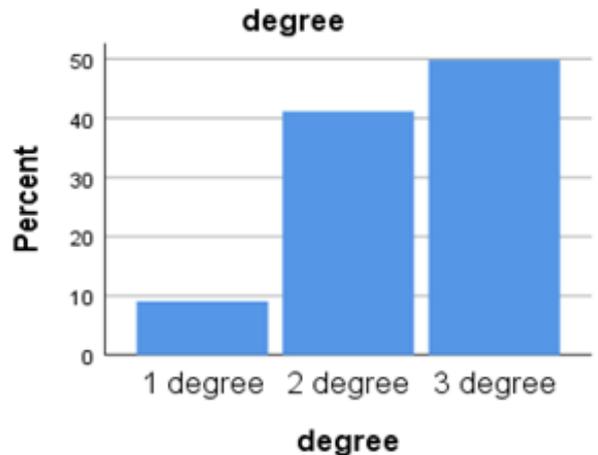


Figure 2- showing degree of burns.

Upper Limb was the most commonly affected body site (69.9%), followed by Head and Neck. and then lower limb.

Of total patients, 7.9% of victims died while 3.4 % left against medical advice. Majority of the victims who died were females and majority of those of left against medical advice were again females. About 88.7 % of the cases were discharged from the hospital after complete treatment.

Table 5- showing the outcome of the burns.

Outcome	Frequency	Percentage
Discharged	235	88.7
LAMA	9	3.4
Death	21	7.9
Total	265	100

Majority of the cases occurred at Night (28.3%), followed closely by evening (25.7%) and morning (24.2%).

Table 6- showing variation in frequency of burns according to the time of the day.

Time of the day	Frequency	Percentage
Morning	64	24.2
Evening	68	25.7
Night	75	28.3
Noon	7	2.6
Afternoon	51	19.2
Total	265	100

DISCUSSION

In this study , it was found that burn injuries were only slightly more common in males than in females. This was contrary to most of the other studies such as those conducted by Gupta et al¹² , Ghuliani et al¹³ , Liu et al¹⁴ and Mohammad Sarwar Mir et al¹⁵ . However, similar findings were reported in study conducted by Lisa Blom et al¹⁶ at Western Cape , South Africa. This may be because in our study the greatest proportion of burns were accidental scalds in children and young adults who are equally vulnerable and a good proportion of burns were due to electrocution, occurring almost exclusively in males. Flame burns were sustained more by females because of exposure to unsafe cooking and more work in kitchens.

Further, it was observed that major proportion of burn patients were in the age group of 0-20 years as this is the age group most vulnerable to accidental burns.

In the present study, major proportion of burn patients was rural. This finding was similar to that reported by Bariar¹⁷. This can be explained by the fact that majority of the population resides in Rural areas and rural people are vulnerable due to low socioeconomic status and unsafe cooking practices.

Majority of the burns were accidental. Similar findings were reported by Gupta et al¹² in their study.

Most of the victims suffered burns involving upto 30% TBSA . Goswami et al¹⁸ reported the similar finding in their study from Jharkhand.

Deaths were reported to be highest in cases where burns involved >60% of TBSA.

Most of the victims suffered 3 degree burns. Similar findings were reported by Rahul Chawla et al¹⁹.

Upper limb was the commonest body site involved. This can be explained by the fact that upper limb is the region involved in most of the domestic work and defensive reflexes to protect our body. This finding was similar to that of Lal et al from Delhi²⁰.

Majority of the victims were discharged after complete treatment. This was also reported by Palak Agarwal et al²¹ in their study.

The highest percentage of burn injuries were seen to occur during night (28.3%), followed by evening (25.7%) and morning (24.2%). This can be due to the fact that majority of the people are home during these periods and also due to the usage of heating appliances (water bottles, electric blankets and other heating appliances) during night hours.

CONCLUSION:

This retrospective observational study was conducted on a total of 265 patients admitted in the burn unit, SMHS. This study showed a preponderance of burn injuries among males, in the age group of 0-20 years, and residents of rural areas. Further, majority of these were found to be accidental in the form of scalds. Most of the cases reported were those of 3rd degree burns. On the basis of this study followed preventive measures can be recommended to bring down the incidence of such injuries:-

- 1 Health education to the general public in the form IEC in mass media.
- 2 Safety manuals to be made a must along with domestic appliances.
- 3 Effective legislation.

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