

# Profile of Burn Deaths: A Study based on Postmortem Examination of Burn Cases at R.N.T. Medical College, Udaipur

Akhilesh Sharma<sup>1</sup>, Manish Kumar Sharma<sup>2</sup>, Ashish Kumar Garg<sup>3</sup>

<sup>1</sup>Associate Professor, Department of Forensic Medicine & Toxicology, R.N.T. Medical College, Udaipur, Rajasthan,

<sup>2</sup>Associate Professor Department of Forensic Medicine R.N.T. Medical College Udaipur Rajasthan, <sup>3</sup>Medical Officer, Nathdwara, Rajsamand, Govt. of Rajasthan

## Abstract

Burn injuries are a public health problem in developing countries like India specially in females. Our objective of the present study is to know the pattern of deaths due to burns, socio etiological factors involved and to suggest preventive measures. A study based on autopsies conducted in R.N.T. Medical College, Udaipur (from 1<sup>st</sup> March 2018 to 30<sup>th</sup> September 2018) where total 780 Medico-legal autopsies were conducted during this period, out of those 86 were due to burn. 45 victims were male and 41 were female. Maximum 46 of the cases were in the 21-40 years of the age group in both genders. Most of the cases were found to be from rural area (80.23%). The most common manner of burn was accidental (74.41%) followed by suicidal burns (22.09%). Majority of victims died as a result of flame burn (74.41%) and death due to flame, major cases were females (62.5%). Majority of victims (41.86%) died with more than 80% burns and (52.32%) victims could not survive for more than 24 hours. The cause of death in (52.32%) cases was shock followed by septicemia in (32.5%).

**Keywords:** Burn, Incidence, Pattern of burn, Manner of death.

## Introduction

Burns constitute a major role in mortality and morbidity in the whole world, whether accidental, suicidal or homicidal. Burn injuries are among the most devastating of all injuries and a major global public health crisis. Burns are the fourth most common type of trauma worldwide, following traffic accidents, fall from height and homicidal death. Approximately ninety percent of burns occur in developing countries, regions that generally lack the necessary infrastructure of fire safety measures and instruments to reduce the incidence and severity of burn cases in human being.

Dowry deaths in India have become a problem of great concern. Almost every day we see in the media and

read in the newspapers. Cases of young women either burnt or provoked to commit suicide by the husband and in-laws for the dowry. At the same time accidental burns are very common in young women. They are more vulnerable as most of the young women spend their time in the household work especially in the kitchen.<sup>7</sup>

The aim of present study is to provide an analysis of burn mortality across all age group, dead bodies brought in the mortuary of RNTMC, Udaipur. It investigates how to mortality is distributed across all age groups, sex, and population groups and what are the circumstances of burn mortality occurrence.<sup>4</sup>

## Material and Method

This is prospective study based on autopsies conducted in the Department of Forensic Medicine Toxicology, Ravindra Nath Tagore Medical College, Udaipur during 1<sup>st</sup> March 2018 to 30<sup>th</sup> September 2018. In this period total 780 autopsied were conducted, out of that 86 dead bodies were brought to mortuary with the alleged history of burn injuries. These cases autopsies

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### Corresponding Author:

**Dr Manish Kumar Sharma**

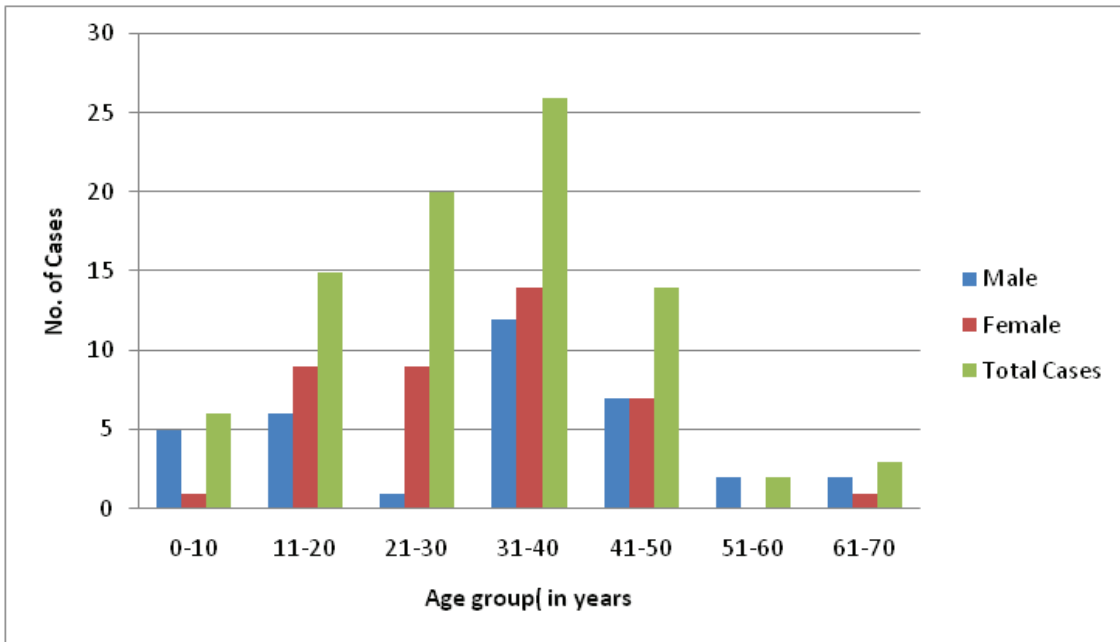
Associate Professor, Forensic Medicine R. N. T.

Medical college udaipur rajasthan

Email: drmanish1280@gmail.com

reports prepared in detail including age, gender, time of death, period of survival, percentage of burn injuries, hospital records, history recorded from the police with inquest papers, relatives of deceased and friends.

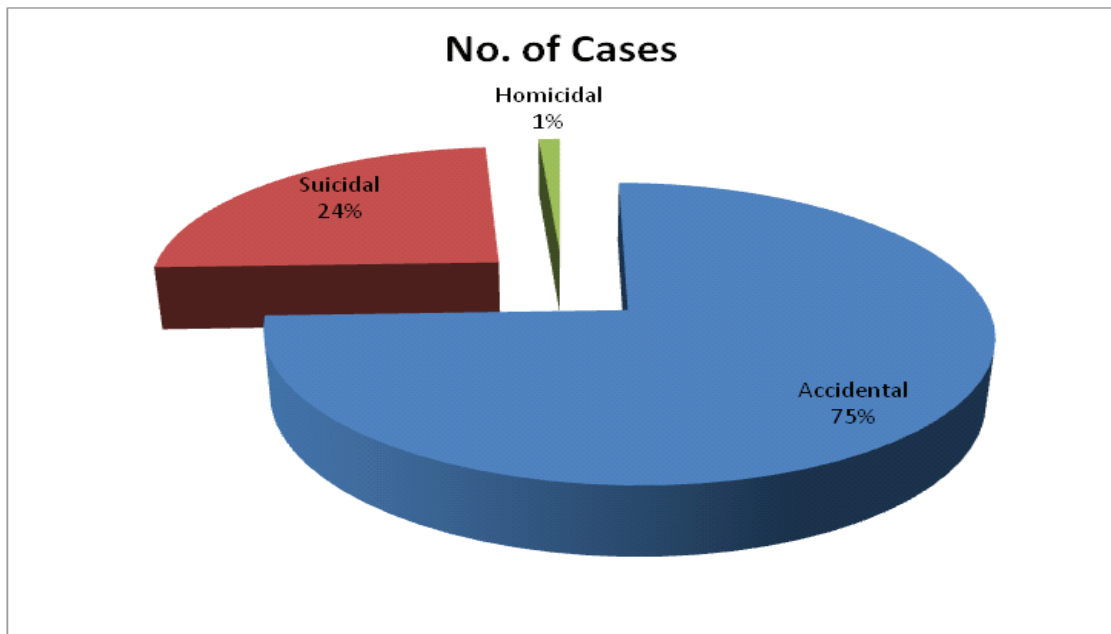
**Distribution of burn cases according to age and gender (Fig.1)**



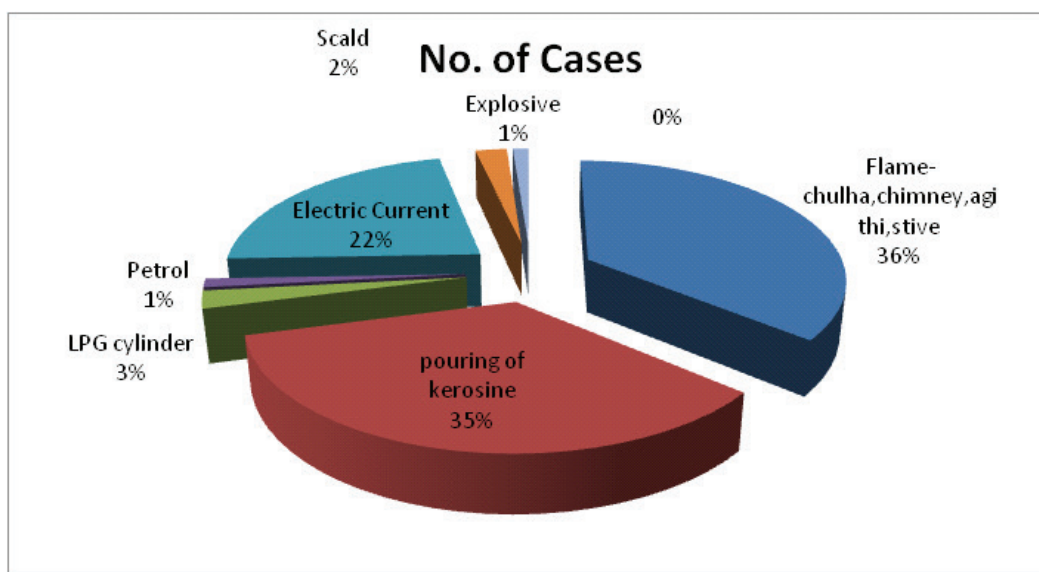
**Distribution of burn cases according to marital status (Table 1)**

Marital status	No. of cases	Percentage
Married	65	75.5
Unmarried	21	24.5

**Distribution of burn cases according to manner of death (Fig.2)**



**Distribution of burn cases according to type of burn (Fig.3)**



**Distribution of burn cases according to involved body surface area (Table 2)**

TBSA%	No. of cases	Percentage
0-20	20	23.3
21-40	04	4.6
41-60	07	8.1
61-80	19	22.1
81-100	36	41.9

**Distribution of burn cases according to duration of survival (Table 3)**

Duration of survival	No. of cases	Percentage
<12hrs	25	29.06
12-24hrs	20	23.25
2-3days	14	16.27
4-7days	17	19.76
>1 week	10	11.62

### Result

In the study period total 780 medico-legal autopsies were conducted, out of total, 86 cases brought to mortuary with the alleged cause of death as burn. 45 were males and 41 were females. Male and female ratio was 1:1.1. 46 cases were in the 21-40 years of age group in both the gender. Maximum cases belong

to the married category (75.5%). Majority of the cases were from rural area (80.23%). Majority of burn incidence occurred at home (80.23%). Peak incidence of electric burns occurred in rainy season. Manner wise distribution of death due to burns reveals that more number of victims died by accidental burn (74.41%) followed by suicidal burn (24.4%) and homicidal burn

(1.16%). Majority of victims died as a result of flame burn (74.41%) followed by electric burn (22.09%), scald burn (2.32%) and explosive burn (1.16%). Death due to flame burn majority of cases were female (62.5%). This study revealed that the total body surface area involved was more than 80% category in 41.86% cases. Majority of death due to burns in victims were more due to shock (66.2%) followed by septicemia (32.5%) and complications (1.16%). Majority of victims died due to burn admitted in hospital were (83.7%). Majority of burn incidence occurred during 9 p.m. to 4 a.m. (45.3%) followed by 1 p.m. to 8 p.m. (31.4%) and 5 a.m. to 12 p.m. (23.3%).

Most of the burn deaths occurred at indoor places and were preventable by reasonable precautions. Most effective ways to prevent these burn accidents are mass public education programme regarding safety measures in household environment and industries, first aid education of burn injuries should be part of elementary education. All buildings and industries should be equipped with all fire safety instruments.

### Discussion

In the present study, there is slight predominance of male victims on females and majority of them were in the reproductive age group 21-40 years. Most common manner of the burn was accidental, followed by suicidal and homicidal. similar in an earlier study of government medical college and hospital Chandigarh and PDU Medical college Rajkot, it was observed that most burn death occurred in the age group of 21-40 years.<sup>7</sup> In other study of deaths from burn in Faisalabad, most common age group in females was 20-29 years and in males 30-39 years.<sup>8</sup>

In our study maximum cases belongs from married category and majority of burn incidence occurred at home. Similar study reports of Ranchi 78.6% burn cases were married<sup>10</sup> and in Chandigarh study majority of burn cases were married and belong from rural area.<sup>11</sup>

Manner wise distribution of deaths due to burn was accidental followed by suicidal and homicidal. In other study of Rajkot most common manner of death was accidental followed by suicidal and homicidal and in Memochoubi et al study most of death due to burn were accidental.<sup>2,7</sup> In study of Masud U et al .most of burn cases died due to homicidal burn (59%).<sup>8</sup>

Majority of victims in my study died due to flame

burn (74.41%) followed by electric current (22.09%), scald burn (2.32%) and explosive (1.16%). Females died due to exposure of flame burn cases were (62.5%). In similar study of death from burn in Faisalabad most of cases were of flame burn, in Indore study most common agent of burn injuries were flames.<sup>8,12</sup>

41.86% cases involved more than 80% body surface area in my study which is similar to Memchoubi et al study.<sup>2</sup>

Most common cause of death is shock in 66.2% cases in present study which is similar to other study of Mishra et al from 01 January 2013 to 31 December 2013<sup>9</sup> and the fire is both a blessing and scourge to the mankind study of Mangal HM et al 55.33% victims died within 24 hours of incidence due to shock.<sup>7</sup> Majority of burn incidence occurred in late night (9 p.m. to 4 a.m.).<sup>7,9</sup>

### Conclusion

In the present study, there is male predominance slight higher than female, with the majority of burn cases are between 21-40 years of age. Flame and accidental burns were the most common mode of burn injuries involved. Most of burn injuries occurred at homes and were preventable by reasonable efforts and fire safety measures. Our study clearly indicated that shock was the most common cause of death. Main factor of high rate of burn injuries in society are social factors. Most important step in reducing the burn incidence is through mass education programme, simple safety instructions and adopting measures regarding fire safety. Government, non-government organizations and doctor community are needed to concentrate in the fire safety programme. Burn prevention programmes need to be launched in country especially in rural areas. In cold climate, fire safety measures should be followed in special manner to prevent burn injury accidents.

**Ethical Clearance** taken from institutional ethical committee of RNT Medical College, Udaipur as per rules.

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**Conflict of Interest:** Nil

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