

An Autopsy Study of Burn Injuries in Elderly Women

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Abstract

Fire is mischievously called “necessary evil”. Burn injuries have long been described as among the most serious injuries that may affect human body. The issue of burns has always been a significant cause of morbidity and mortality in both developing and developed countries around the world and a major cause of global public health crises.^{1,2} A 10 year retrospective study of death in elderly burn victims was under taken at St. Johns medical college hospital, Bangalore, India. It was observed that majority of the victims were woman, many of them sustained burns while performing “Puja” (ritual of worshipping God). All were dry burns. Face and upper part of chest was spared in 80% of cases. 80% victims sustained burns during morning hours. Total body surface area involved ranged from 50 to 70%.

Keywords: women, Burns Injury, Puja, Hospitalization.

Introduction

Burns are injuries produced by application of dry heat such as flame, radiant heat or some heated solid substance like metal or glass to the body. Local injury to the body by heat may result from dry heat, application of hot bodies, licking by flames resulting in simple burns, moist heat leading to scalds, and corrosive poisons resulting in corrosive burns. Electric spark, discharges, flashes and lightening leads to electric burns.³

Of all the Medico-legal Autopsies, death due to burns is the second most common cause preceded by Road traffic accidents. In India, many of these cases are accidental, suicidal or homicidal. Many studies do exist as to the profile of death due to burns. However this study was undertaken to know the extent death due to burns in elderly, age, sex, mode of sustaining burns, total body surface of burns, duration of survival, cause

of death and to suggest any remedial measures.

Burn-related injuries and deaths amongst women in India are likely to be caused by: kitchen accidents related to use of kerosene and flammability of garments; self-immolation or suicides; and homicides related to domestic violence. Evidence suggests that domestic violence (physical, sexual and emotional), which is widespread in India, could have an important role in these burn injuries.⁴ Various studies have been undertaken and studied with regards to burns. But, nowhere a study due to burns sustained while performing Puja has been reported.

The purpose of this study was to highlight the mortality due to burns sustained by elderly women of a particular religion performing a ritual called Puja. This study was undertaken at SJMC over a period of 10 years

Puja is essentially a religious *ritual of Hindus*, or a form of communion with the Divine. *Puja* is a religious *ritual* which some *Hindus* perform every morning after bathing and dressing but prior to taking any food or drink. They offer prayers to the Deity of worship, lighting a lamp filled with oil or while pouring oil into it, which is usually kept at the ground level and also rotating around the burning lamp, elderly women

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have been victims of burns. They even offer fruits, flowers and various other offerings to the Deity and recite chants and hymns with eyes closed with devotion.

Materials and Methods:

A retrospective study was conducted at St. Johns Medical College, Bangalore. All medico legal autopsy records and emergency medicine records of elderly burn victims over a period of ten years (March 2001 to December 2010) were perused and descriptive statistics was collected in a systematic manner.

We compared the deaths sustained by elderly women over a period of 10 yrs due to burns sustained while performing Puja & burns sustained by women due to other domestic accidents and suicides. A Statistical analysis of the same was done later in order to understand the trends and patterns of burn deaths while performing Puja.

Results and Discussion

Burn is a problem prevalent worldwide, especially in developing countries.⁵

During the period of study, a total number of 120 victims of burns medico-legal autopsies were undertaken by our Department. In our study there was a preponderance to females compared to males similar to the study by Pateria⁶.

Among the 120 cases majority were accidental deaths. Similar results were obtained by the study conducted by Bangal.⁷ of these 20 cases were victims of accidental pooja burns. Puja burns constituted 16% of total burns cases.

All the victims who died belonged to predominantly female urban population. This may be because the majority of people admitted in our hospital are from Bangalore.

65% of victims died on auspicious days which were observed as Tuesday, Friday and Sunday. This is because more number of people perform puja during these days.

80% of the victims belonged to Hindu Brahmin Community. Also 80% of victims sustained burns while doing Puja in the morning hours. In hindu community Brahmins are known to perform pujas and morning

hours are apt for performing majority of the pujas.

80% of the victims were aged >60 years and only 20% were <60 years. Clothings played a major role, Nylon saree being a risk factor, 80% of victims were found to be wearing Nylon Sarees.

They drape themselves with a saree, usually one end of the saree is left loose hanging around which is hanging at the back and at the level of knees and may come in contact with flame of lighted lamp and can catch fire while rotating around the lighted lamp. While being deeply engrossed in prayers, chances of catching fire are more. Also the poor reflexes in elderly women make them vulnerable to sustain burns. Unfortunately, while being engrossed deeply in prayers or meditating before the Deity of worship, lighting a lamp filled with oil or while pouring oil into it and also rotating around the burning lamp, elderly women have been victims of burns.

The leading cause of death being Septicaemia about 85%. Also 65% of victims died within a week of hospitalisation. All the cases in the present study were cases which were hospitalized at the burns ward of St. Johns Medical College Hospital, Bangalore who died in the hospital and subjected to Postmortem examination due to failure to respond to the treatment given and developing complications of burns such as primary shock, secondary shock, toxemia, septicaemia, acute renal failure and others.

Leading Cause of Death was Septicemia-85%

- Most of the cases were dry burns sustained due to flames.
- There was no smell of kerosene.
- There were no scalds seen.
- Majority of the deaths occurred within a week (69%)
- Most of the victims died due to Septicaemia (51%)

The total number of unnatural deaths in elderly women over a period of 10 years was analysed which was 50 cases. Out of which Pooja burns constituted 20 cases i.e, 40%; followed by Road Traffic Accidents 16

cases i.e.32%.

Table -1 - Distribution of elderly burns according to the day.

Days of week	No. of deaths (20)	Percentage
Monday	1	5%
Tuesday	5	25%
Wednesday	2	10%
Thursday	2	10%
Friday	4	20%
Saturday	1	5%
Sunday	5	25%

Table -2 - Age wise distribution of puja burns

Range	No. of deaths
30-40 years	1
41-50	1
51-60	1
61-70	10
71-80	7

Table-3 – Percentage and survival period of burn victims

Case No.	Percentage of burns	Days of survival
1.	80%	5
2.	45%	1
3.	35%	5
4.	30%	20
5.	35%	3
6.	50%	5
7.	50%	7
8.	60%	6
9.	50%	8
10.	90%	2
11.	40%	7
12.	70%	6
13.	80%	1
14.	70%	5
15.	75%	27
16.	40%	26

17.	35%	12
18.	40%	4
19.	35%	18
20.	55%	2

Table -4 - Percentage of burns in death due to puja burns

Range of percentage of Burns	No.	Percentage
0-25%	0	0%
26-50%	12	60%
51-75%	5	25%
76-100%	3	15%

Table -5 - Survival period in days of puja burns victims

Range	No. of cases	Percentage
≤ 7days	14	70%
7 – 14 days	2	10%
≥ 14 days	4	20%

Conclusion

The purpose of this study is to create awareness among elderly women while performing Puja and to take more precautions. As the elderly women suffer from poor reflexes, the family members can play an active role in helping the elderly and preventing casualties.

Further research on the social and economic resources available to the elderly burn population, particularly women, is warranted in order to provide cost effective quality care during acute hospitalization and upon discharge.

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