

A STUDY ON MEDICO LEGAL ASPECTS OF FEMALE BURN VICTIMS BROUGHT FOR AUTOPSY AT DARBHANGA MEDICAL COLLEGE, LAHERIASARAI, DARBHANGA, BIHAR

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Abstract

Background: As per WHO estimate, about 1, 80,000 deaths occur due to burn injury every year throughout the world, the vast majority being in the low and middle income countries with almost half in South-East Asia. this study was undertaken at Mortuary in Darbhanga Medical College, to describe the various physical and psychological conditions of burn female victims brought for autopsy. **Material & Mehtod:** A total of 50 burn victims were brought for autopsy during the study period, out of which 42 were female victims. An observational study was conducted considering 42 cases of death due to fatal thermal burns brought for autopsy at Darbhanga Medical College, Laheriasarai in Bihar, India during the period of January 2020 to December 2022 (2 year). Ethical permission was obtained from Institutional Ethics Committee of the study centre prior to the study onset. **Results:** Out of the total number of 50 cases, 42 (84%) were females. Out of these 38 (90.5%) were married. Out of 38 married female victims, around three-fourth died within 7 years and followed by those married for 7 to 10 years of marriage. It was observed that, out of 42 cases studied, 5 cases (11.9%) suffered from psychiatric illness and 8 (19.4%) suffered from some chronic systemic diseases. 2 victims had history of previous suicidal attempts and 7 (16.6%) had a history of addiction to alcohol, tobacco chewing and smoking etc. **Conclusion:** Domestic and peri-domestic burn is totally preventable and manageable. Standard management protocol ensuring prompt resuscitation, wound care, infection control, and early surgery if needed and improving the quality of care can avert mortality in a tertiary setting.

INTRODUCTION

As per WHO estimate, about 1, 80,000 deaths occur due to burn injury every year throughout the world, the vast majority being in the low and middle income countries with almost half in South-East Asia.^[1] Burns are responsible for a huge load of morbidity due to disfigurement resulting in emotional trauma and stigma, as well as are also the leading cause of disability adjusted life years (DALYs) lost in these countries. In India around 7 million people suffer from burn each year with 1.4 lakhs deaths and 2.4 lakhs people suffer from disability. Out of 5 burn victims, 4 are women and children. Burns are fifth most common cause of non-fatal childhood injuries and 11th leading cause of death among 1-9 years children.^[2] It has huge socio-economic impact too due to direct cost of hospitalization, surgery and rehabilitation; indirect cost includes loss of wages, prolonged care, and

psychological problems due to deformity. These figures give idea about the burden caused by burn cases on health system in India. The burning topic in India is burn deaths of young newly married females for demand of dowry.^[3] Loss of such young population has led to adverse effect on country's development.

Major risk factors of burn include inadequate safety measures at workplace and home; poverty and overcrowding; underlying medical conditions, including epilepsy, peripheral neuropathy, and physical and cognitive disabilities; alcohol abuse and smoking; easy access to chemicals used for assault; use of kerosene (paraffin) as a fuel source. Burn has also a social dimension. It may be associated with accidental, suicidal or homicidal causes. Burns is preventable. Efforts for prevention and care of the victims can reduce burn related mortality, morbidity and disability significantly. National Programme for Prevention, Management

and Rehabilitation of Burn Injuries (NPPMRBI) is an initiative by GOI was launched for preventive, curative and rehabilitative care of the burn patients.^[4]

Data regarding burn injury and its magnitude of problem in Bihar, an eastern state of India is scarce, especially in the resource constraint peripheral medical colleges of the state. With a view to find out the problem, this study was undertaken at Darbhanga Medical College, to describe the various physical and psychological conditions of burn female victims brought for autopsy.

MATERIALS AND METHODS

A total of 50 burn victims were brought for autopsy during the study period, out of which 42 were female victims. An observational study was conducted considering 42 cases of death due to fatal thermal burns brought for autopsy at Darbhanga Medical College, Laheriasarai, Bihar, India during the period of January 2020 to December 2022 (2 year). Ethical permission was obtained from Institutional Ethics Committee of the study centre prior to the study onset.

A specially prepared proforma containing medico-legal aspects of the death due to burn was filled. It was analyzed using Microsoft excel and tabulated for better understanding. All were studied with respect to marital status, alleged history of dowry death, manner of death, recording of dying declaration, history of psychiatric illness, chronic diseases, previous suicidal attempts etc., method of burn injury infliction, inflammable substance, cause of death and survival period after infliction of burn injury.

RESULTS

Out of the total number of 50 cases, 42 (84%) were females. Out of these 38 (90.5%) were married. Out of 38 married female victims, around three-fourth died within 7 years and followed by those married

for 7 to 10 years of marriage. Alleged history of dowry demand could be recorded among 8 cases. As for the manner of death, majority of the cases were accidental followed by suicidal and then homicidal. [Figure 1] It was observed that, out of 42 cases studied, 5 cases (11.9%) suffered from psychiatric illness and 8 (19.4%) suffered from some chronic systemic diseases. 2 victims had history of previous suicidal attempts and 7 (16.6%) had a history of addiction to alcohol, tobacco chewing and smoking etc. Accidental burns were mainly due to kerosene stove explosion followed by suicidal burns where victims poured kerosene on themselves. Other causes noted were contact with fire while cooking or worshipping, fall on gas stove or kerosene stove over body, poured kerosene or diesel by family members or found burnt. Use of accelerant to facilitate the burn injury is a common practice. It was observed that the use of inflammable substance was reported among one-third of the cases. When manner of death was considered in relation with use of accelerant, mainly suicides had used it. The smell of inflammable substance was also perceived on post-mortem examination in many cases. [Table 1] Cause of death was compared to survival time. It was seen that overall the most common cause of death was septicemia, though immediate death following fatal burn was due to dehydration and shock. [Table 2].

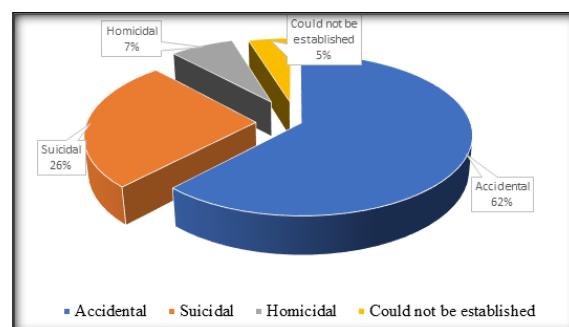


Figure 1: Pie distribution of victims based on the manner of death

Table 1: Distribution of cases according to use of inflammable substances

Manner of death	Use of inflammable substance	Smell perceived on autopsy
Accidental	6/26	4/6
Suicidal	9/11	8/9
Homicidal	1/3	1/1
Unknown	0/2	0/0

Table 2: Distribution of cases as per their cause of death and survival time

Survival time following incidence	Cause of death	
	Dehydration and Shock	Septicemia
0-6 hours	1	0
6-12 hours	2	0
12-48 hours	4	0
3-7 days	0	17
>7 days	0	18

DISCUSSION

This study shows that the maximum number of victims were married females which is consistent with the studies done by many Indian authors.^[5,6] This indicates the presence of social problems among married people, especially females, who have all household responsibilities. They are also vulnerable to become victim of dowry demand and domestic violence. The present study shows that, majority were accidental burns followed by suicidal and homicidal. It emphasizes that housewives are more prone to accidental contact to fire while working in the kitchen, particularly in small and crowded houses. Though many studies have consistent findings.^[5-7], Nath et al.^[8] in a study done in a tribal area where a different lifestyle and culture existed, found that maximum burn deaths were suicidal in nature

Among the victims, 19.5% had a history of psychiatric illness. Also, 16.6% had a history of addiction to alcohol, tobacco chewing and smoking etc. One victim had a history of previous suicidal attempts. Akhter et al.^[9] observed psychiatric illness in only 1.54% cases. Chawla et al.^[10] observed alcoholism and addiction to smoking both together in 22% of their study population. House fire due to tobacco smoking in combination with alcoholism or handicap is a problem related to urban lifestyle. These factors might predispose victims to fire related hazards. Awareness to the use of safety measures is impaired due to these conditions.

Kerosene stove explosion leading to accidental burns was most common manner of injury followed by suicide by pouring kerosene themselves. Some had history of contact with flame while asleep or while lightening a lamp. This is consistent with studies done by Ambade and Godbole.^[5], Chawla et al.^[10] and Khartade et al.^[11] Kerosene is easily available and routinely used accelerant for household purposes. Use of diesel as an accelerant was characteristically noted in only one case. This is consistent with study done by Nath et al.^[8] In study done by Khartade et al.^[11] sprinkling or pouring of kerosene over the body was observed in 24.81% victims of suicidal burns and 2.33% cases of alleged homicidal burns. Smell of inflammable substance was perceived on autopsy examination in total 13 cases. Out of these, 8 were suicidal, 4 were accidental and 1 was homicidal. In study done by Chawla et al.^[10], smell of kerosene was perceived in 4% cases. As the duration of hospital stay increases, the chances of perceiving smell of inflammable substance decreases due to their volatile nature and cleansing by the hospital staff.

83.3% victims died due to septicemia while 16.7% died due to dehydration and shock. All the victims that died due to septicemia had survived for more than 24 hours. Sharma et al.^[12] observed that 4.38%

cases died due to neurogenic shock, 27.71% cases died due to hypovolemic shock and 67.91% cases died due to septicemia and its complications. Chawla et al.^[10] observed that 22% cases died due to primary shock, 10% died due to oligemic shock and 56% died due to septicemic shock and 12% died due to injuries. Dasari et al.^[13] had observed shock in 8% case, toxemia and shock in 18% cases and septicemia in 71% cases of their study. Instantaneous death in case of burns is due to neurogenic shock. Death within the first 72 h is due to loss of fluid leading to hypovolemic shock. As the survival period and hospital stay increases, chances of infection increases leading to septicemia.

CONCLUSION

Domestic and peri-domestic burn is totally preventable and manageable. This basic education should be imparted from the primary school level and reinforced at every level till the university by different interactive way. Safety measures at household level regarding use of fuels for cooking; not using lanterns or kupa can prevent accidents among children. Standard management protocol ensuring prompt resuscitation, wound care, infection control, and early surgery if needed and improving the quality of care can avert mortality in a tertiary setting.

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