

Mortality Profile of Burn Cases: A Retrospective Study

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Abstract

Background: Burn is one of the major causes of death in all medico-legal cases. In India, with a population of over 1.2 billion, there are 700,000-800,000 burns admission annually.

Objective: This study was done to study the mortality profile in autopsy cases with alleged cause of death as burns.

Materials and Methods: The present retrospective study was conducted on 42 autopsy cases brought to the Department of Forensic Medicine, Maharishi Markandeswar Institute of Medical Sciences and Research, Mullana, during the period 2005-2011. All the study variables such as sex, age, percentage, and manner of burns were studied. The data sources were the postmortem reports, hospital records, and police investigation reports.

Results: Out of total 42 cases, 30 (71.43%) were females and 12 (28.57%) were males. Most common manner of burns was accidental (83.34%) followed by homicidal (16.66%). Flame burns were the most common (84.50%) followed by electrical burns (14.5%) and scalds (1%). In 27 cases, the percentage of burns were between 90% and 100%; in 5 cases, the percentage of burns were between 80% and 90%; in 10 cases, the percentage of burns were <80%. Among females, 23 were married and 7 were unmarried. In 83.34% cases, police carried out an investigation under Section 174 criminal procedure code (CRPC) and no foul play was found. 11.9% cases were registered under Section 302 International patent class (IPC), and 4.76% cases were registered under Section 304B IPC as dowry deaths.

Conclusion: In the present study, there was female predominance, with the majority of the cases belonging to the second or third decade of life. Majority of the cases were accidental in nature, but the intent is sometimes difficult to determine for injuries such as burns. Proper prevention program directed at social and environmental changes and providing education to the people will help in inculcating the necessary lifestyle changes and thereby ensuring the safety of our people.

Key words: Autopsy, Accidental, Burns, Death

INTRODUCTION

All of us have experienced the pain that even a small burn causes at some time in our life; it affects all ages and is prevalent in both developing and developed the world. Burn injuries represent one of the most important public

health problems facing both developing and industrialized nations today. Burn is one of the major causes of death in all medico-legal cases. In India, with a population of over 1.2 billion, there are 700,000-800,000 burns admission annually.¹ The exact figure is believed to be higher due to lack of reporting, poverty, illiteracy, and poor standards of safety, this high incidence makes burns an endemic health hazard.

As the etiological factors of burn injuries varies considerably in different communities, careful analysis of the epidemiological features in every community is needed before a sound prevention program can be planned and

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implemented. In India, various sociocultural factors come into play when burns cases are investigated. Some of these factors include dowry deaths, use of firecrackers in festivals, poor housing conditions, illiteracy, and poverty.² This study was done to study the mortality profile in autopsy cases with alleged cause of death as burns.

MATERIALS AND METHODS

The present retrospective study was conducted on 42 autopsy cases brought to the Department of Forensic Medicine, Maharishi Markandeswar Institute of Medical Sciences and Research Mullana, during the period 2005-2011. All the study variables such as sex, age, percentage, and manner of burns were studied. The data sources were the postmortem reports, hospital records, and police investigation reports. Our study had the approval of ethical committee of the college. The study was carried out in accordance with the code of ethics of the world medical association (declaration of Helsinki) for experiments involving humans. Data obtained were saved in Microsoft Excel and analyzed using Statistical Package for Social Sciences (SPSS Version 20).

RESULTS

Out of total 42 cases, 30 (71.43%) were females and 12 (28.57%) were males. Among females, 13.34% were <18 years, 53.33% were between 18 and 30 years, and 33.33% were >30 years of age. Among males, 10.00% were <18 years, 58.00% were between 18 and 30 years, and 32.00% were >30 years of age. In 83.34% cases, police carried out an investigation under Section 174 criminal procedure code and no foul play was found. 11.9% cases were registered under Section 302 International patent class (IPC), and 4.76% cases were registered under Section 304B IPC as dowry deaths. Most common manner of burns was accidental (83.34%) followed by homicidal (16.66%). Flame burns were the most common (84.50%) followed by electrical burns (14.5%) and scalds (1%). In 27 cases, the percentage of burns were between 90% and 100%; in 5 cases, the percentage of burns were between 80% and 90%; in 10 cases, the percentage of burns were <80%. Among females, 23 were married and 7 were unmarried.

Shock (65.70%) was the most common cause of death followed by septicemia (31.30%) and suffocation (3.0%).

DISCUSSION

In our study, we found that there was a female preponderance as 71.43% of the victims were females. More than half

of these females were in the age group of 18-30 years. This female preponderance is an agreement with other reports from our country as reported by Jaiswal *et al* 2007,³ Khajuria *et al*, 2009⁴ and several other studies⁵⁻⁷ and might be explained by the involvement of females in domestic activities and also to dowry deaths. Sociocultural factors are among the major causes of difference in sex predisposition of burn injuries in developing countries like India as compared to other developed nations. More than half of the total cases were aged between 18 and 30 years. This age distribution found is similar to other studies by Jaiswal *et al* 2007³ and Subrahmanyam (1996).⁸ Higher incidence among young adults both male and female may be explained by the fact that they are generally active and exposed to hazardous situations both at home and work. Due to our social structure, older individuals usually live within the family, thus decreasing their exposure to hazardous situations.

Most of the cases were accidental (83.34%). This is in agreement with studies done from other parts of our country.^{3,9} Total percentage of homicidal cases was 16.66%; out of which, two cases (4.76%) were registered under Section 304B as dowry deaths. No suicidal case was registered. These findings are not in agreement with study done by Shaha and Mohanthy (2006),¹⁰ in which 58.10% cases were homicidal in nature and Khajuria *et al* (2009),⁴ in which 5.3% cases were registered as suicidal deaths. This difference in mortality pattern could be due to the reason that the real facts may have been hidden due to various fears and social pressures as around 71.43% of the victims were females. Most of these were married and in the age group of 18-30 years. Lack of proper police investigation could also be a contributory factor. Among those who died in suspicious circumstances family quarrels, marital disharmony, poverty, and illiteracy were the predisposing factors.

Flame burn was the most common cause (84.50%) followed by electrical (14.5%) and scalds (1%). This is in agreement with the studies done in other parts of our country.³ As regard, the source of flames kerosene stoves was the most common cause. This is consistent with other studies in developing countries, but in industrialized nations flammable liquid and gas stoves were the most common source of flame burns. This difference could be attributed to standard of living and developmental stage of the countries.

CONCLUSION

In the present study, there was female predominance, with majority of the cases belonging to the second or third decade of life. Majority of the cases were accidental in

nature, but the intent is sometimes difficult to determine for injuries such as burns. In the present Indian set up, most of the burn injuries are caused by domestic accidents, which are easily preventable provided proper prevention program directed at social and environmental changes and providing education to the people will help in inculcating the necessary lifestyle changes and thereby ensuring the safety of our people.

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