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BURN DEATHS AND MEDICOLEGAL AUTOPSY: A RETROSPECTIVE STUDY IN A TERTIARY CENTRE IN ASSAM, INDIA

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ABSTRACT Burn injuries and deaths due to such injuries are an inescapable reality. Burn injuries rank among the most severe types of injuries suffered by the human body with an attendant high mortality and morbidity rate. As such a study to determine various factors in such deaths is attempted. In our study nearly 91% of cases were females with involvement of the age group between 21-30 the highest. Most of the incidents were as a result of accidents and involved a greater degree of total body surface area. Death was due to shock and occurred within 3 days of the incident. It is possible to reduce burn mortality and morbidity through combination of measures aimed not only at reducing the likelihood of occurrence of fire, but also by reducing the severity and impact of a burn injury through appropriate trauma care practice

KEYWORDS : Burn injury, females, shock, mortality

Introduction

Burns are injuries, which are produced by application of dry heat, such as radiant heat, flame or any other heated solid substance like metal or glass to the surface of the body [1]. Burn injuries rank among the most severe types of injuries suffered by the human body with an attendant high mortality and morbidity rate [2]. In our country often, the circumstances of burns are enveloped in mystery, obscurity and unreliable statements. The reasons behind this action may dowry, marital infidelity, sexual jealousy, and oedipal dominance of mother in-law over the grooms, etc.[3] They are the 4th most common type of trauma worldwide, following traffic accidents; falls and interpersonal violence and have tremendous medico-legal importance. [4]

Due to higher incidence of burns and high mortality rate due to burns in the region, this study has been carried out to find out various demographic and the injury profiles of the burn and to compare with the observations of various authors by scientific discussion.

MATERIALS AND METHODS

A retrospective study was conducted on the 932 victims subjected to medico-legal autopsy at mortuary of Department of Forensic Medicine, Tezpur Medical College, Tezpur over a period of three years from January 1 2019 to December 31st 2021 from which deaths due to burns were analyzed which were 96 in number The study design comprised of thoroughly scrutinized information gathered from autopsy related documents, proforma, history of relatives of the deceased, hospital records, concerned investigating agencies and laboratory report of viscera and their contents, fluids, diseased tissues and organs and other relevant suspicious samples, available in our department.

OBSERVATION AND RESULTS

Out of the 932 cases where medico legal autopsy was performed 96 cases were those where deaths were due to burns comprising 10.3% of total cases. Out of these cases females with 88 cases (91.66%) were the majority with males constituting only 8 cases.

The age group 21-30 was the most commonly involved with 51 cases followed by those between 31-40 and 41- 50 with 19 and 16 respectively. Extremes of age were very rarely involved.

Table 1 Showing Age Distribution Of Cases

Age Group	Number of cases
0-10	1
11-20	6
21-30	51
31-40	19
41-50	16
50 and above	3
Total	96

Most of the deaths as a result of burns were due to accidents 61.36% followed by suicide.

The cause of death in 56 cases was opined due to shock, hypovolemic or neurogenic while the rest were due to septicemia and exhaustion.

The total body surface area involved the highest number of cases with 81-100% distribution followed by 61-80%. Very few cases were observed where the body surface area was less than 30% and death was the resultant.

Most of the victims died within 3 days of the incident with 31 cases within 24 hours and 11 cases within 1-3 days. Very few cases died after 7 days of the incident.

73% of the cases belonged to the rural region while the remaining cases were from urban or semi urban regions.

DISCUSSION

We found that out of the medico legal autopsies done in the year deaths due to burns constituted 10.29% of the cases. The majority of these cases are females which are in agreement with the studies of Lal S et al, Gupta A K et al, Gadge SJ et al, Shinde A B et al. Females being the majority victims should nor come as a surprise because they are the one who are most involved in kitchen related works which deals with fire and other inflammable substances. Also the use of heavy clothing and skin tight garments use by the females in the region contribute to more burn cases and its higher involvement as during fire this clothes cannot be taken off quickly. Also our socio cultural traditions places a heavy burden on the females in the name of the social evil called dowry which has claimed innumerable lives since time immemorial.

The age groups 21-30 years and 31-40 years are the most commonly involved. This is in agreement with the studies of Lal S et al[5], Gupta A K et al[6], Gadge SJ et al[7], Shin- de A B et al[8], and Vaghela P et al[9]. This is the productive age and they are generally active and exposed to hazardous situations both at home and work. The extremes of age are generally kept away from hazardous situations like fire or boiling water etc and any deaths in this age group are generally due to accidents.

In our study most of the burn cases were attributed to accidents followed by suicides. Only a few homicidal cases were noted. This pattern is in agreement to the studies of most of the authors. In a country with poor safety protocols regarding inflammable substances and its use accidental burns are very common and leads to lot of fatality. Also kerosene is readily available in most homes, which are generally used by females for accomplishing suicide.

In our study majority of the cases died due to shock followed by septicemia. This is in agreement with the study of Tasgaonkar GV et al[10]. However our findings differ from the studies of Lal S et al[5], Shinde A B et al[11], Patel T C et al[12] and Aziz UBA et al[13] who reported deaths due to septicemia more. This pattern can be explained by the fact the study region in our study consisted of populations who donot have proper transport and treatment facilities due to which there is often delay in receiving treatment resulting in early death due to shock.

In our study total body surface area involved was high with most cases involving 60% of total body surface area and more. This is agreement with the study of Gadge SJ et al[7] and differs from the study of Aziz UBA et al[13]. Higher involvement of total body surface area carries a worse prognosis and results in greater fatality.

In our study death occurred of the victims within 3 days of the incident. This is in agreement with most of the studies by the authors. This is mostly due to lack of treatment options in the region, which leads to early deaths as mentioned earlier. The majority of victims being of the rural region are consistent with the demographics of the study region.

CONCLUSION

Humans cannot do away with fire under any circumstances. But injuries and resultant deaths due to fire can be dealt with proper educational and awareness programs. Basic primary training and the dos and don'ts while dealing with a case of fire should be made known to the masses. Prop- er treatment and transport facilities should be made and there should be dedicated burn units in every hospital. It is possible to reduce burn mortality and morbidity through combination of measures aimed not only at reducing the likelihood of occurrence of fire, but also by reducing the severity and impact of a burn injury through appropriate trauma care practices. More research through establishment of burn injury registries in designated centres will unfurl specific epidemiological characteristics that can be used to develop specific interventions.

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