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Study on burn injury, assessment of allegations of self-inflection Medico Legal Cases brought to tertiary Hospital, Aurangabad

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ABSTRACT

Every year a real proportion of deaths in India happen due to burn injuries. Innovation of Fire was greatest invention towards the human beings. Burn is an injury which is produced by the application of dry heat such as flames, radiant heat or heated substance over the body service. Deaths from burn are a major public health problem in our country. Burn injuries are among the most devastating of all injuries and a major global public health crisis. In India there are several thousands of deaths is happening due to fire or burns. Sadly vast majority of these cases happen in the home and are due to smoking, defective kerosene stove bursts, defective electrical wiring, attempted suicides by self-immolation, homicidal burns of young women by husband or in-laws (Dowry deaths/bride burning).Fire or burns are the fourth most common type of shock for worldwide, following traffic accidents, falls and interpersonal violence. Burns have huge medico-legal importance as they may be examine to be the usual cause of unnatural death in India

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Key Words: Burns, Dry heat, Shock, Autopsy, Epidemiological information, Accidental.

Introduction

Fire has become the most useful factor, yet it has proved to be one of the most ruinous enemies of man. Fire destroys property, wipes out thousands of lives every year and thereby cause wastage of human resources. Burn injuries are one of the main causes of death in all medico-legal cases in India and are the most common showing of dowry death. Infection of the burn injury leading to septicemia is the main cause of death, after

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the initial period of shock. In India, about 60,000 people suffer from burns annually, more than 50,000 come to hospitals and about 10,000 succumb to thermal injuries.1 Moreover, the incidence of burnt wives, whether suicidal, homicidal or accidental, has become endemic to Indian society. The reasons for this endemic are manifold like marital infidelity, dowry, sexual jealousy, and oedipal dominance of mother in-law over the grooms, etc.Burn injuries have long been described as among the most serious injuries that may trouble a human being. The most common cause of flame burns in modern society is accident. Burn is a distinctive but significant mode of suicide and homicide everywhere in the world. Below Table show the classification of Burn.

Old System	New System	Summary
First degree	Not classified	Fiery red, very painful, but not blistered
Second degree	Partial-thickness	Extend through the epidermis and may penetrate into the dermis. Healing by regeneration; full function and appearance should be recovered.
Third degree	Full-thickness	Penetrate the dermis and may involve subcutaneous tissue. Hair follicles, sebaceous glands, and sweat glands are destroyed. Healing occurs through scar formation and re-epithelialization
Fourth degree	Complete burns	Extend into the subcutaneous tissue to include muscle, fascia or bone. They may generate systemic toxic reactions or rapidly lead to infection or sepsis.

Table 1: Classification of Burn & Wound

South-East Asia solo accounts for just over one-half of the total number of fire-related deaths worldwide and females in this region have the highest fire-related burn death rates globally. Among the various age groups, children under 5 years and older people (i.e. those aged over 70 years) have the highest fire-related burn mortality rates. This study was conducted with the objective to assess the medico-legal aspects, risk groups, types and severity of burns in humans coming to the tertiary care hospital of tertiary, Aurangabad.

Case Report

CASE-I A 21 year old female was brought dead to tertiary care hospital casualty following fatal thermal burn injuries. Female Body was brought to department for postmortem examination. History revealed that the dead body was recovered from the burnt house without knowing the cause of burn. The deceased was a moderately built adult female. Dermo-epidermal burn injuries were found all over the body. Fire break of various size and shape present on the head, both upper limbs, both lower limbs and dorsal aspect of both feet. Internal examination disclosed soot in the upper

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airways and the intrapulmonary bronchi, and cherry-red coloration of the blood, muscles, and congestion of all visceral organs. The viscera were sent for chemical analysis and the toxicological analysis was reported as negative.

CASE-II

22 years old married female was living with her husband, mother in law and brother in law in a village of Jaipur region of Rajasthan. After one year of marriage, they moved to Aurangabad for employment. one day, neighbor noticed black colored smoke emitting from the window of the kitchen at 10:00 am and called the fire brigade. As the entrance door was closed from inside they broke the window of the kitchen and noticed that cotton mattresses, bed sheets, pillows were on fire. They found a female lying on the floor of kitchen was alight. They informed to the concern police station and shifted the victim to the Tertiary Hospital. Aurangabad. Casualty medical officer declared brought dead. The victim's father alleged a dowry torture death against her in-laws. The investigating officer prepared an inquest and dead body of the victim was sent to the Forensic Medicine & Toxicology Dept. for medico-legal post mortem examination on the same day

Below Table show Age and sex distribution burn case.

Age in years	Male	Female	Total (%)
0-10	5	6	11(3.08%)
11-20	16	54	70(19.61%)
21-30	23	130	153(42.86%)
31-40	20	56	76(21.29%)
41-50	6	15	21(5.89%)
51-60	4	5	9(2.52%)
61-70	5	8	13(3.64%)
71-above	1	3	4(1.12%)

Table 2: Age and sex distribution burn case

Assessment of allegations self inflicted burns

Most dowry deaths occur when the young woman, unable to bear the torture and harassment commits suicide. Most of these suicides are by hanging, poisoning or by self inflected burn. Sometimes the woman is killed by setting herself on fire; this is known as "bride burning", and sometimes disguised as suicide or accident. Deaths by burning of Indian women have been more frequently attributed to dowry conflicts. In dowry deaths, the groom's family is the perpetrator of murder or suicide. To deal with this case, section 304 B (Dowry deaths)

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were incorporated in the Indian Penal code(IPC).In below Table 3,4 show that female number in suicidal case greater then male.

Mode of burn	Female	Male
Accidental	77	57
Homicidal	5	2
Suicidal	13	7
Unknown	1	0
Total	96	66

Table 3: mode of burn and sex distribution burn case

		Cause			Total
		Accidental	Suicidal	Homocidal	
Females	Count	480	70	40	590
	% within Sex	81.4%	11.9%	6.8%	100.0%
Males	Count	390	20	0	410
	% within Sex	95.1%	4.9%	.0%	100.0%
Total	Count	870	90	40	1000
	% within Sex	87.0%	9.0%	4.0%	100.0%

Chi sq 4.61; p value <0.09

Table 4: cause of burn and sex distribution burn case in Percentage

Rule of nines

The Wallace rule of nines is a tool used in pre-hospital and emergency medicine to estimate the total body surface area (BSA) affected by a burn. The rule of nines was devised by Pulaski and Tennison in 1947, and published by AB Wallace in 1951.

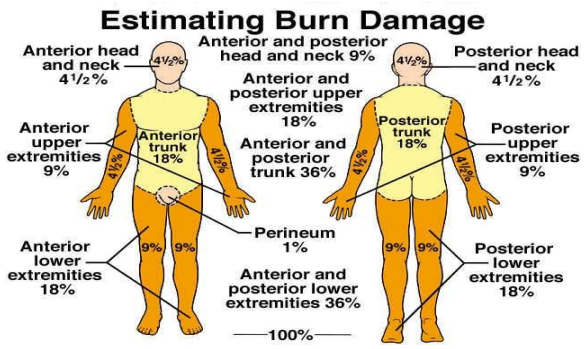

Figure 1: Burn-Rule of nines (Adults)

Above figure show rule of nine in adults. Rule of nines a method of estimating the extent of burns, expressed as a percentage of total body surface. In thismethod, the body is divided into sections of 9 per cent, or multiples of 9 per cent, each: head and neck, 9 per cent;anterior trunk, 18 per cent; posterior trunk, 18 per cent; upper limbs, 18 per cent; lower limbs, 36 per cent; genitalia andperineum, 1 per cent. The rule of nines is fairly accurate for adults but does not allow for differences in proportion inchildren, for whom the lund and browder classification is generally used.

Wound or Burn Care

Early cooling (within 30 minutes of the burn) reduces burn depth and pain, but care must be taken as over-cooling can result in hypothermia. It should be performed with cool water 10–25 °C (50.0–77.0 °F) and not ice water as the latter 39 can cause further

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injury. Chemical burns may require extensive irrigation. Cleaning with soap and water, scraping of slough, necrotic tissue and or removal of eschar, and application of dressings are important aspects of wound care. If intact blisters are present, it is not clear what should be done with them. Some tentative evidence supports leaving them intact. Second degree burns should be reevaluated after two days.

Management of first and second degree burns, small standard proof exists to determine which type of dressing should be used. It is reasonable to manage first degree burns without dressings. While topical antibiotics are often recommended, there is little evidence to support their use. The use of Silver sulfadiazine or negative-pressure as a wound therapy has little evidence in wound dressing.

Medications

Burns can be very painful and a number of different options may be used for managing pain. These include administration of analgesics such as ibuprofen and acetaminophen and opioids such as morphine. Anxiolytics such as Benzodiazepine may also be used as an adjunct to reduce anxiety. To reduce itching in the healing process antihistamines, gentle wound massage, or transcutaneous nerve stimulation may be used (Marx, 2010).Antihistamines, however, are only effective for this purpose in 20% of people.

Figure 2: Home Remedies for Burn

Prevention of Burns

Many health, agencies, corporations, authorities, and even medical personnel in LMICs consider injury prevention to have a much lower priority than disease prevention. Injury prevention policies and programmes are conspicuously absent and ongoing efforts are crisis-oriented, adhoc, and unscientific in nature. It costs 47 approximately US$ 1000 per patient per day to provide satisfactory care in the Western world. This is clearly not possible in many developing countries.

Discussion

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Death of young generation as a result of burns is more common in rural as compared to the urban areas of subcontinent. Fire is a needful evil and mankind has been suffering its ruinous outcomes even before the primitive man discovered its use for his comforts. Burn injuries and their morbidity/ mortality are extensive the world over but they have a unique difference and significance in the Indian subcontinent.

Most of the casualty were working women and they do not follow the safety measures due to lack of time or knowledge resulting in such incidents. Most of the victims were female and belong to the Hindu community, which is similar to the findings of previous studies. Most of the victims died in the hospital after receiving treatment, which include intravenous fluid and also some oral medication. This might be the cause of absence of soot particles in the trachea in most of the victims.

Conclusion

Dowry death, an evil crime is gradually immerse and polluting the entire society. Newly married young women are the victims who adopted the way of suicide to end their lives by burning, hanging, poisoning or drowning. In police records they are classified under three specific categories, which invoke different sections of the law. They are "dowry murders" (committed by the woman's husband or members of his family for additional dowry or non-payment of promised dowry); "suicides" (forced or voluntary, but in most cases related to dowry demands); and "accidents" (a majority classed under "stove-burst" or "kitchen accident"). Indian Legislature to design stern laws for curtailing the evil. Section 304B IPC, 1860 stands testimony to the fact. It has been invoked in thousands of incidents concerning unnatural deaths of Indian brides in the safety of their matrimonial homes.

The most important step in reducing the burn incidence is through mass education. Following the safety instructions like putting the lights off while going out, wearing tight and cotton cloths while cooking, not leaving a fire source unattended etc. will definitely help to reduce the incidence of burn injuries. The specialized care given to really burned patients is time consuming and very expensive. Here too, prevention is better than cure.

The government needs to focus in this direction and the social groups, NGOs,

including the doctors need to put in more sincere effort. The government must appoint more doctors in the burn units. The NGOs and social groups must in order a periodic effort in educating the rural peoples. Steps should be taken not only to minimize burn death but also to prevent and reduce their occurrence at least in cases where human errors and human greed plays a role.

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