Original Article

MEDICOLEGAL ASPECT OF BURN VICTIMS: A ten years study

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ABSTRACT

Objectives: To see the prevalence and nature of medico-legal burns among patients.

Methodology: It is a retrospective observational study conducted at Fauji Foundation Hospital, Rawalpindi from April 1999 to April 2008. All patients of more then ten years of age, irrespective of sex with burn injuries were included in the study.

Results: One hundred seventy eight patients were studied and among them one hundred forty six (82.02%) were accidental burns with more prevalence among females (81.50%). Twenty three (12.92%) patients were having homicidal burns and all were females while nine (5.06%) patients sustained suicidal burns and among them six (66.66%) were females. Majority of patients i.e. one hundred six were from 2nd and 3rd decade of life. Among homicidal injuries twenty one (65.62%) were from flame and two (6.26%) from acid. All suicidal patients sustained flame burns. Females are more commonly involved (66.66%) as compared to males (33.34%).

Conclusion: Homicidal and suicidal burns are not uncommon especially among young women (i.e. 15 to 30 years of age) and every case should not be taken as accident until proved otherwise. A clinical forensic expert or concerned authorities should evaluate all these cases to minimise the likelihood of inaccurate diagnosis.

KEY WORDS: Burn, Medico-legal, Homicide, Suicide.

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INTRODUCTION

The incidence of suicide and homicide is on the increase worldwide, including Pakistan. One million people die annually due to suicides and homicides alone[1]. Poisoning, hanging and drowning are the major methods of suicide in contrast to blunt trauma, sharp trauma and strangulation are more common in homicide. However deaths due to burns are seen more frequently in both homicide and suicide especially in subcontinent. Combined methods are more common in homicide as compared to suicide. Predominance of male is found in all methods of suicide and homicide, except burning.[1,2] Quarrel and revenge were the common precipitating cause/motive for homicide in compari-

son to chronic illness and mental illness for suicide.[1]

Burns are one of the most common modes used in suicide or homicide in Indo-Pak especially among young victims.[3-5]Acid, Alkali, Hot liquids are rarely used for suicidal or homicidal purposes in our country. Homicidal burning of young unmarried and married women in Indo-Pak is a major concern for law enforcing authorities, the judiciary, police and medico-legal experts.[4] Every burn especially in young unmarried or married females is not an accident because they may be homicidal or suicidal. Usually these cases were simulated as accidents by their relatives. In these incidences, the most common reasons given in history are being caught fire while cooking, explosion due to gas leakage, after an explosion in kerosene stove or when chimney fell on victim while lighting lamp etc.[3,6,7] These are all usual explanations given in the history, narrated by relatives or in postmortem reports of these victims. Majority of these explanations are found not true when inquired in detail by forensic experts.

METHODOLOGY

This retrospective observational study was conducted at Burn Unit Fauji Foundation Hospital, Rawalpindi from April 1999 to April 2008. All patients of more then ten years of age, irrespective of sex with burns injuries were included in the study. Patients reporting to causally department or admitted in burn units were evaluated carefully regarding cause, place and circumstances of injury, extent of involvement of area burnt and mortality of burn victims. Patients less then ten years of age were excluded from the study because medico-legal aspect is least likely in these patients.

Patients and their relatives/attendants were carefully interviewed by medical officer and in charge nurse repeatedly regarding the circumstances and nature of accident, complete profile of the patient and their family etc was recorded carefully. All these information's were gathered in complete secrecy and by repeated informal interviews and discussions. All findings were recorded on separate Performa's containing all demographic details of patient and their family, and evaluated statistically at the end of study.

RESULTS

A total of 178 patients were studied during study period. Among them one hundred forty six (82.02%) were accidental with more prevalence in females one hundred nineteen (81.50%). Twenty three (12.92%) patients were having homicidal burns and all were females. No homicidal burn was reported among males. Nine (5.06%) patients sustained suicidal burns and among them six (66.66%) were females. Majority of patients, one hundred six are from 2nd and 3rd decade of life (Table-I) i.e. sixty eight (38.20%)

Table-I: Distribution of Medico- legal nature of burns among patients

Age	*Accidental*		*Homicidal*		*Suicidal*		*Total*	*Statistics (95% Confidence Limits)*
	F	*M*	*F*	*M*	*F*	*M*		
11-20	40	18	6	-	2	2	68(38.20%)	33.95 to 42.73
21-30	22	3	11	-	1	1	38(21.38%)	17.42 to 25.42
31-40	17	2	5	-	2	-	26(14.60%)	10.35 to 17.92
41-50	26	-	1	-	1	-	28(15.73%)	11.46 to 19.21
51-60	10	-	-	-	-	-	10(05.61%)	3.67 to 7.86
> 60	4	4	-	-	-	-	08(04.48%)	2.72 to 6.12
	119 (81.50%)	27 (18.50%)	23	-	6 (66.66%)	3 (33.34%)	178	
Total	146 (82.02%)		23 (12.92%)		9 (5.06%)			
Statistics (95% Confidence Limits	87.32 to 77.12		16. 23 to 9.56		3. 47 to 7.26		(Analyzed by Software Epi6)	

and thirty eight (21.385) respectively. Table-II shows that among homicidal injuries twenty one (65.62%) were from flame and two (6.26%) from acid. Homicidal injuries due to burn are not reported in males. Among suicidal patients all nine patients (28.12%) sustained flame burns. Females are more commonly involved (66.66%) as compared to males (33.34%).

DISCUSSION

Incidence of burns whether accidental, homicidal or suicidal are not uncommon in Indo-Pak society. Incidence, etiology and nature of burn vary from one community to another and depend mainly upon age, sex, customs, economic status, environmental and social circumstances[1,2]. Accidental burns are common in females as compared to males in Pakistan because working in kitchen is the prime responsibility of females. So they are more prone to burn accidents at home. In our study majority of females (81.50%) sustained accidental burns at home as compared to males (18.50 %).

Homicide by burning amongst women is a major concern in Indo-Pak as it has been common throughout all social strata and geographic areas[6,8]. In our study, 12.92% patients were having homicidal burns and all were females. Incidence of homicidal burn is quite high in India as compared to our country. Ambade from Nagpur from India[9] in their study observed that homicidal deaths due to burning accounted for 21.6% of the total medico legal deaths. Kumar and his colleagues showed in their study incidence of homicide burn was 31%.[10] Among them 77% affected women's were between 16 - 25 years of age. Most of them got burned with kerosene oil[2]. Shah from Berhampur, Eastern India[11] reported 55.1% homicidal burns. The majority of women (90.63%) were in the 18 to 26 years of age group. Majority of our patients (59.58%) are also from same age group i.e. 2nd and 3rd decade of age. Kumar[11] reported that 60% of their burn victims were between 16- 25 years of age and among them only 46% were accidental. Contrary to Indo-Pakistan a study conducted in Alexandria concluded that most of burn injuries were unintentional (89.1%), suicidal and homicidal injuries represented 4.3% and 2.6% respectively[12]. In our study incidence of homicidal burns is high in Pakistan as compared to developed world whereas in India incidence is the highest throughout the world probably due to dowry dispute and peculiar socio-economic setup.[1,5]

Suicide by burning amongst women is another major concern in India and Pakistan as it has become pervasive throughout all social strata and geographical areas. In our study, 5.05% suicidal cases are reported and among them females are predominant (66.66%). All suicide victims sustained flame burns. Kumar from Manipal from India[13] observed that 21% of victims were immolation suicides. In his series, most women were from joint families (i.e. multigenerational groups of related individuals living under a single roof) and majority of the affected were between 21-25 years of age (69%) at the time of suicide. Prevalence of suicidal death due to burns is also low in developed countries. Shin from Korea[14] reported 5.11% of suicidal deaths among all burns from 1993 to 2001, and the prevalence is significantly high in the more highly educated, metropolitan, married and divorced groups as compared to never-attended-school, rural and never-mar-

Table – II: Causes of Medico- Legal burns among male and females victims

	Homicidal			*Suicidal*			*Total*	*Statistics (95% Confidence Limits*
	Flame	*Acid*	*Other*	*Flame*	*Acid*	*Other*		
Male	-	-	-	333.34%	-	-	3 (9.37%)	6.23 to 12.58
Female	21	2	-	666.66%	-	-	29 (90.63%)	95.12 to 85.43
Total	21(65.62%)	2(06.26%)	0	9(28.12%)	0	0	32	
Statistics (95% Confidence Limits	70.03 to 60.45	4.12 to 8.96		24.67 to 32.34				(Analyzed by Software Epi6)

ried groups respectively. Suicide is commonly observed among females having family disputes whereas in males it is more common among patients having economic problems and chronic illness.

Acid burns from assault represent a substantial and negligible proportion of burn injuries in the developing world. These injuries are usually inflicted among young age group, involving less then 40% of body surface area which usually comprises of head neck, upper limb and chest. Asaria from Uganda[15] made similar observations i.e. mean age of 33.1 years, with a male to female ratio of 1.1:1. The average extent of injury was 14.1% total body surface area (TBSA), commonly involving the face (86.7%), head and neck (66.7%), upper limbs (60.0%) and chest (53.3%). Mannan and his colleagues[16] reviewed 40 years literature on chemical burns and concluded that among total 771 cases reported world wide Jamaica and Bangladesh had the highest reported incidence. Male victims were more common, with the exception of Bangladesh and Taiwan. The youngest cohort was from Bangladesh. Two broad motives noticed are increase in violent crime and use as a crime of passion in disputes between men and women. No case of suicidal acid burns is reported among our patients and two (6.26%) cases of homicidal burns involving face, neck and chest reported among our patients.

Studies by Gaur[6], Sharma[7] and Gaur and his colleagues[17] proved few cases after forensic examination that deaths in these cases were not suicidal or accidental rather homicidal. Study conducted by Yasti and his colleagues[2] reported that 41.4% of incidences were accepted as accidents by physicians while only 27.6% of victims were labeled as accidents by forensic scientist. So to minimize the likelihood of inaccurate diagnosis, a clinical forensic scientist is necessary in burns department[2, 1]

CONCLUSION

Homicidal and suicidal burns are not uncommon in our setup. Every case of burns especially among young women (between 15 to 30 years of age) should not be taken as accident until proved otherwise. A clinical forensic expert or concerned authorities should evaluate all these cases to minimise the likely hood of inaccurate diagnosis.

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