

Factors involved in post survival period of burns victims – An autopsy study

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Abstract

Burns have terrible medicolegal importance as they may be considered to be the commonest cause of unnatural death in India. The present study conducted at RIMS, Kadapa District, Andhra Pradesh, in 2012 and 2013, included 94 cases of suicidal deaths due to burns. Aimed to know the various factors influencing survival period of burns victims who were autopsied at RIMS, mortuary. Females (54.25%) outnumbered males (45.74%) with male to female ratio of 1:1.18. Most common age group involved was third decade (40.42%) followed by fourth decade (25.53%). Victims with total body surface area involving 40-60%TBSA were more (44.68%) compared to others. Second degree burns involved victims were more (47.87%) followed by third degree and first degree burns. victims who were presented with soot (13.82%) in respiratory tract (inhalational injury) were associated with higher mortality with less post survival period when compared with others. Most of the victims (44.68%) died in 5-7days of post survival period. Multi organ failure associated with sepsis was found in majority of the cases (46.80%). Young female with deep burns involving extensive body surface area with inhalational injury and multi organ failure associated with sepsis were the major factors influencing mortality of burns victims.

Key Words: burns, facial injury, mortality, total body surface area, soot, edema, inhalational injury.

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Received Date: 19/07/2017 Revised Date: 04/08/2017 Accepted Date: 12/09/2017

DOI: <https://doi.org/10.26611/1018332>

Access this article online	
Quick Response Code:	Website: www.medpulse.in
	Accessed Date: 28 September 2017

INTRODUCTION

Burn injuries are an extremely stressful experience for victims and their families. Patient age and size of the burns are very important predictors of mortality rates in burned patients,¹ but so also are inhalation injury,² degree

of burn,³ and many other factors⁴. Burns are one of the most common household injuries and thus an important cause of morbidity and mortality⁵. In the present study we made an attempt to highlight the factors which are individually or collectively effecting the prognosis of burn victims.

MATERIAL AND METHODS

The present study conducted among medico legal autopsies held at RIMS, Kadapa, District, Andhra Pradesh, from 1st January 2012 to 31st December 2013. Our Study included 94 cases of suicidal deaths due to burns out of 932 autopsies conducted in 2 years. Necessary data was collected from panchanama, hospital records and autopsy findings.

RESULTS

Females (54.25%) outnumbered males (45.74%) with male to female ratio 1:1.18. Most common age group involved was 21-30yrs (40.42%) followed by 31- 40 yrs (25.53%) (TABLE: 1). Victims with total body surface area involved 40-60% TBSA were more (44.68%) followed by 30-40% TBSA or less (24.46%), 60-80% TBSA (19.14%) and 80-100% TBSA (11.70%) (TABLE: 2).

Table 1: Age and sex distribution

Age	Male (%)	Female (%)	Total (%)
1-10	00	00	00(00%)
11-20	01	07	08(8.51%)
21-30	17	21	38(40.42%)
31-40	13	11	24(25.53%)
41-50	09	05	14(14.89%)
51-60	02	05	07(7.44%)
>60	01	02	03(3.19%)
Total	43 (45.74%)	51(54.25%)	94(100%)

Table 2: Percentage of body surface area (tbsa) involved

	Number	Percentage
< 30-40% TBSA	23	24.46%
40-60% TBSA	42	44.68%
60-80% TBSA	18	19.14%
80-100% TBSA	11	11.70%
Total	94	100%

Table 3: Degree of burns involved

	Number	Percentage
1 ST DEGREE	17	18.08%
2 ND DEGREE	45	47.87%
3 RD DEGREE	32	34.04%
Total	94	100%

Second degree burns involved victims were more (47.87%) followed by third degree burns (34.04%) and then by first degree burns (18.08%) (TABLE:3). Incidences which happened in very closed space and involving severe facial and nasal hair burns were more associated with inhalational injury. These findings were noted in 17.02% cases and absent in 82.97% cases. On autopsy we found edema of the respiratory tract with pulmonary oedema and each lung weighing more than 900 grams with mild pinkish frothy fluid on cut section. (TABLE: 4).

Table 4: Percentage of victims with severe facial burns, nasal hair burns and respiratory tract (pulmonary) oedema

	Number	Percentage
Present	16	17.02%
Absent	78	82.97%
Total	94	100%

Table 5: Soot in respiratory tract

	Number	Percentage
Soot Present	13	13.82%
Soot Absent	81	86.17%
Total	94	100%

Victims with soot (13.82%) in respiratory tract (inhalational injury) were associated with less post survival period and higher mortality (TABLE: 5). Most of the victims (44.68%) died after 5-7days after the incident (TABLE :6).

Table 6: Survival period after burns

	Number	Percentage
Spotdeath / In 24hrs	24	25.53%
1-2 Days	17	18.08%
3-4days	11	11.70%
5-7days And Above	42	44.68%
Total	94	100%

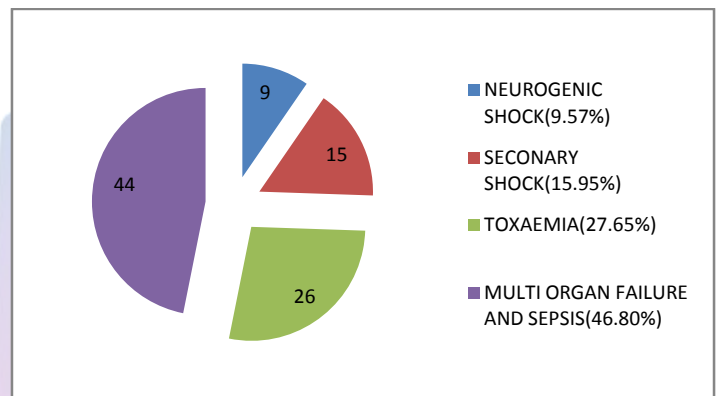


Figure 1: Cause of death

Multi organ failure and sepsis is found in majority of the cases (46.80%) as cause of death followed by toxemia (27.65%), secondary shock (15.95%) and neurogenic shock (9.57%) (FIGURE :1) and this was noticed mostly in victims who had burns involving 40-60% of TBSA and who were having post survival period of 5-7days and above.

DISCUSSION

Females (54.25%) outnumbered males (45.74%) with male to female ratio 1:1.18. Most common age group involved was 21-30yrs (40.42%) followed by 31- 40 yrs (25.53%).In our study females were the majority of the victims and involved in their active age period when compared with both extremes of life, which was similar with studies conducted by Bahram Groohi *et al*⁶ B. R. Sharma *et al*⁷ Rooh-ul-Muqim *et al*⁸ Usama B. Ghaffar *et al*⁹ AF Attia *et al*¹⁰. B. R. Sharma *et al*^[12] M. K. Wong *et al*¹³ P.Vico J. Papillon *et al*¹⁴.Victims with total body surface area involved 40-60%TBSA were more (44.68%) followed by 30-40% TBSA (24.46%), 60-80%TBSA

(19.14%) and 80-100% TBSA (11.70%). As the percentage of TBSA increased mortality rate also increased. This is similar with study by Usama B. Ghaffar *et al*^[9] AF Attia *et al*^[10] M.K. Wong *et al*^[13] P. Vico J. Papillon *et al*^[14] Grant EO *et al*^[16]. Second degree burns involved victims were more (47.87%) followed by third degree burns (34.04%) and then by first degree burns (18.08%). Incidences which happened in very closed space and involving severe facial and nasal hair burns were more associated with inhalational injury, which were noted in 17.02% cases and absent in 82.97% cases. These were similar with study by AF Attia *et al*^[10] Bruce. M *et al*^[11] M.K.Wong *et al*^[13] P.VicoJ.Papillon *et al*^[14] Grant EO *et al*^[16]. 13.82% of the victims with soot in respiratory tract (inhalational injury) were associated with higher mortality and with less post survival period. Similar results noted with study by AF Attia *et al*^[10] Bruce. M *et al*^[11] M.K.Wong *et al*^[13]. Most of the victims (44.68%) died after 5-7days, consistent with Grant EO *et al*^[16]. Multi organ failure and sepsis is found in majority of the cases (46.80%) followed by toxemia (27.65%), secondary shock (15.95%) and neurogenic shock (9.57%) and this is mostly seen in victims who had burns involving 40-60% of TBSA and who were having post survival period of 5-7days, consistent with study by AF Attia *et al*^[10] and G.C.Bloemsma *et al*^[15]. Young females were the most common victims accounting for 37% of burn fatalities due to septicemia B.R.Sharma *et al*^[12] consistent with our finding.

CONCLUSION

Young female with deep burns involving extensive body surface area with inhalational injury and multi organ failure associated with sepsis were the major factors influencing mortality of burns victims. Prevention efforts are urgently needed to reduce the rate of this unacceptably common cause. Community programmes encouraged to ensure adequate child supervision and particularly for those with impairments, as well as parental education about burns are recommended. To prevent burns interventions should be directed to low socioeconomic status groups; and should be designed accordingly to local risk factors.

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Source of Support: None Declared
Conflict of Interest: None Declared