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A clinico-epidemiological study of rescuer burns

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ABSTRACT

Rescuer burn is a relatively newer terminology introduced to define the burns sustained by a person attempting to rescue a primary burn victim. Few studies have been published thus far on this peculiar type of burns. Due to the general neglect of the rescuer burns victim and discontinuation of treatment in most cases, once the primary victim dies, the rescuer often ends up in badly infected wounds and has a delayed return to work. A prospective study was conducted at the B J Medical College and Civil Hospital, Ahmedabad from January 2009 to December 2012 on the rescuer burns patients treated in its burns and plastic surgery department. 3074 patients of burns received treatment during the period of study. Of these, 48 patients gave the history of sustaining burns while trying to rescue a burns victim. Male to female ratio of rescuers was approximately 7:1. It was significantly higher as compared to the ratio of 1:0.8 of females to male burn victims observed at our centre ($p \leq 0.01$). Average age of the rescuers was higher in males as compared to females but the difference was not significant ($p \geq 0.05$). Of the 45 cases of female primary burns victims, male rescuer was husband of the primary victim in 41/45 cases (91.1%), mother was rescuer in three cases (6.6% cases) and sister was rescuer in one case. Though multiple people came to rescue a burns victim, in all cases, it was seen that it was the first rescuer who sustained burns himself or herself. None of the rescuers had any knowledge of the techniques and precautions to be taken while performing a rescue operation irrespective of their education status, indirectly pointing to the lack of any teaching on burns rescue in the school education curriculum.

1. Introduction

A rescuer burn may be defined as a burn sustained by a person while trying to rescue another person from burns which could either be thermal burns as seen in most cases or electrical burns as seen infrequently [1]. There have been many fire tragedies in the past all over the world, but despite the changes in building constructions and architectural changes, there was little that was done to ensure the safety of the rescuers. Prior to any specific treatment, a patient must be removed from the source of injury and the burning process stopped. As the patient is removed from the injuring source, care must be taken so that a rescuer does not become another victim [2]. There have been instruction manuals formulated of the do's and don'ts for the primary victim in case of being caught up in a fire, but very little has been researched, written and circulated in the mass media as to what should be done if one happens to be present near a burning victim or wants to act as a volunteer in the event of a mass casualty [2]. We regularly come across rescuer burn victims in our institutions and the primary cause of burns appears to be their lack of

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knowledge of any kind of precautions to be taken while trying to rescue a burns victim.

2. Materials and methods

The present study is a prospective study of rescuer burns patients was conducted at the burns and plastic surgery department of Civil Hospital, Ahmedabad, Gujarat, India, from January 2009 to December 2012. The study was approved by the Institutional Research Ethics Committee. All consecutive patients sustaining burns while trying to rescue a primary burns victim were included in the study after taking a written informed consent. Patients were admitted if they met the guidelines set by the American College of Surgeons, committee on trauma [3]. A detailed clinical examination was done and a detailed history was recorded according to the questionnaire created. The data collected included the age, gender, cause and mode of burns; depth, distribution and percentage of burns, relationship to the primary victim, educational status of the rescuer, whether accidental suicidal or homicidal burns, presence or absence of inhalational injury, facial burns, time delay from burn injury to admission in the hospital, associated injuries and co-morbid illnesses, clinical course of treatment and sequelae after severe burn.

3. Results

A total of 3074 patients were treated during the study period. During the course of study, a total of 48 rescuer burn patients received treatment at our centre. Forty-six patients sustained thermal burns and two patients sustained electrical rescue burns. One patient of electrical rescue burn was sustained while trying to rescue a bird caught in the trees during the kite flying festival in Gujarat. The number of male rescuers was significantly higher than females when compared with the ratio of male to female burns patients treated in the hospital ($p \leq 0.001$).

1. Twenty eight patients (58.4%) were managed on outpatient basis and 20 (41.6%) patients were admitted. Of the total of 4841 (85%) were males and 7 females (15%) (ratio: 6:1) (Table 1).
2. Distribution of rescuer burns in relation to primary victim's mode of injury.

   The mode of injury of the primary victim was suicidal in 23 cases (46.8%) and accidental in 25 cases (53.1%). In one case, the rescuer sustained electric burns while trying to rescue a bird. The mode of injury of the primary victim was accidental thermal burns in 23 patients, accidental electric in 2 patients and suicidal thermal in 23 patients. The average burn body surface area (BBSA) in case of accidental thermal burns was 4.1% as compared to the BBSA of 9.4% in cases of suicidal thermal burns (Table 2, Fig. 1).

   A separate category of accidental electric rescue burns included 2 patients, with an average BBSA of 22.5%. The average age of the male rescuers was less as compared to the female rescuers (29.8 Vs 34.5 years), though the difference was not significant.

   The rescuers were most commonly males [41/48 (85.4%) Vs 7/48 (14.6%)], and the primary burn victims were mostly females [(43/48) 89.3%].

3. Age distribution of rescuers: male and female.

Table 1 – Distribution of patients managed on outpatient or as inpatients.

Rescuer burn patient number total: 48 (%)	Patient treated as	
	Admissions	Outpatient treatment
	28 (58.4%)	20(41.6%)

Table 2 – Distribution of rescuer burns according to primary victim's mode of injury.

	Primary victim's mode of injury		
	Accidental thermal	Accidental electric	Suicidal thermal
Rescuer % burns (No. of patients)	4.1% (23)	22.5% (2)	9.4% (23)

Table 3 – Representing the age and gender distribution of rescuer burn patients.

Age distribution (years)	Male	Female	Total
11–20	1	1	2
21–30	26	3	29
31–40	12	1	13
41–50	1	1	2
51–60	0	1	1
61–70	1	0	1
Total	41	7	48

The rescuers were most commonly observed between 21 and 40 years of age. The average age of rescuers of thermal burns primary victim was lesser in case of males (29.8 years) as compared to females (Table 3, Fig. 2).

The burns were thermal flame burns in 46 cases (95.8%) and electric burns in 2 cases (4.2%).

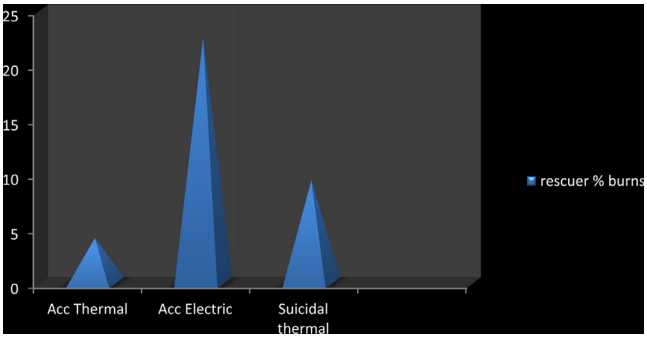

Fig. 1 – Graph representing percentage of burns in rescuer according to the mode of injury of the primary burns victim.