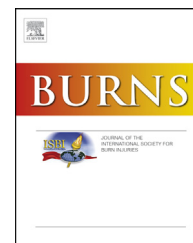


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Paediatric suicidal burns: A growing concern



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ARTICLE INFO

Article history:

Accepted 27 December 2015

Keywords:

Paediatric
Self immolation
Suicidal burns

ABSTRACT

An alarming rise in rates of paediatric population committing self-immolation acts is a growing social and medical problem. In recent times there seems to be a rising concern in paediatric population. A study was conducted at a government tertiary care burn centre over 5 years in paediatric age group of <18 years who had committed self-immolation. Demographic data, aetiology, burn severity, associated illnesses, treatment and outcomes of the patients were collected with preventive strategies. Of total 89 patients, 12 patients were below 12 years (children) and 77 between 12–18 years (adolescent) with female preponderance. Majority belonged to lower middle and upper lower class families. Most had deep partial thickness burns. Psychiatric and personality disorder were found in 24.03% and 31.46% patients respectively. Kerosene was the main agent chosen to inflict injury. The average length of hospital stay was 19.8 days. The crude mortality rate observed was 38.2%. With cultural and socio-economic changes children and adolescents are exposed to increased levels of stress and peer pressure leaving them vulnerable. A multidisciplinary care involving medical, psychological and social support is required. Identifying children at risk and proper counselling and support can form an important strategy at prevention rather than cure.

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1. Introduction

Burn injuries are known to be a major global hazard, leading to morbidity and mortality along with major economic and social impact [1]. It has long term sequelae which includes psychosocial rehabilitation along with treatment of the primary wound. Incidence and mortality due to burn injuries is high in developing nations [2]. Self-inflicted burns represent a major social and medical problem. Worldwide more than 8 lakh people die of suicide every year. Suicide occurs throughout the lifespan and was the second leading cause of death among 15–29 year olds globally in 2012 [3]. Overall suicide rate in Asia is approximately 19.3 per 100,000, about

30% higher than the global rate of 16.0 per 100,000 [4]. Several cases of self-immolation suicides go unreported due to social and medico legal reasons. Self-immolation as a mode of suicide is a common method chosen in Asia [5]. These self-inflicted burns with an accelerant produces extensive full thickness burns and are often associated with inhalational injuries. Management is complicated due to multiple factors, poor compliance, and worsening of their depression. Suicide rates among children have increased worldwide so has the incidence of self-inflicted burns [6]. Literature suggests children form a major proportion of burn admissions [7–10]. There is paucity of data on self-inflicted burns in paediatric age group in India. We aimed to study the epidemiology, aetiology of paediatric suicidal burns with its impact on

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<http://dx.doi.org/10.1016/j.burns.2015.12.012>

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physical and social aspects of the subject and the society and also the related preventive strategies.

2. Methods & material

2.1. Methodology

Acute admissions of suicidal burns up to the age of 18 years to our tertiary level government referral burn Centre at Victoria Hospital of Bangalore medical college and research institute in Bengaluru were prospectively studied over a period of five years (2009–2013). All patients of suicidal burns were included in the study. The subjects were divided into children (<12 years) and adolescent (12–18 years) group [11]. A Performa was prepared to document sociodemographic data which included age, gender, education, type of family and per capita income. Information regarding the circumstances surrounding the incident, burn severity, cause of suicide and any associated illnesses was also collected. During history taking particular emphasis was given to know the intent of suicide by talking to patients/relatives/friends. The admitted patients were treated according to ATLS protocol [12]. As per the protocol, patient first underwent a primary survey followed by a secondary survey. The secondary survey was burn specific and included detailed history and regional examination including eye and ear, with associated facial and inhalational burns. Abuse specific history if any was documented in all patients. Assessment of the burn wound was done by Rule of nine/ Lund & Browder chart. Fluid resuscitation was administered using modified Parkland's Formula. Management of burn wound, dressings, splinting, drugs and counselling was done. The patients were subjected to detailed psychiatric assessment to see for underlying mental illnesses and put on therapy as required. They were scored to Beck's Depression Inventory II, an objective questionnaire scale used to rate subjects who have underlying depression and are at risk for committing suicide [13]. It is a 21-item, self-report questionnaire with answer options that include four increasing levels of severity. Scores for each item range from 0 to 3; the total score is the sum of all responses. Subjects are divided into minimal/mild/moderate/severe depression categories. Impact of the injury on physical and social aspect of the patient, treatment received, outcomes of the injury and possible preventive strategies were studied. The collected data was compiled thoroughly and documented into MS excel spreadsheets and analysed.

2.2. Setting

The study was done in Bengaluru, the capital of the Indian state of Karnataka. Bengaluru has an estimated population of 8.5 million in 2011 [14], making it the fifth most populous city in India and the 18th most populous city in the world [15]. Bangalore was the fastest-growing Indian metropolis after New Delhi between 1991 and 2001, with a growth rate of 38% during the decade. The cosmopolitan nature of the city has led to migration of people from other states to Bengaluru [16]. According to the 2001 census of India, 79.4% of Bengaluru's population is Hindu, roughly the same as the national average

[17]. Muslims comprise 13.4% of the population. Christians and Jains account for 5.8% and 1.1% of the population, respectively, double that of their national averages. The sex ratio in the city is 916 females for every 1000 males, and a literacy rate of 89% [18].

3. Results

3.1. Demographics

Over a period of five years, of 8246 admissions to the burns unit of Victoria hospital, 1439(17.5%) were paediatric population of which 89 cases were suicidal (Tables 1 and 2). Patients in whom history was not clearly available or any discrepancies in same were excluded from the study. There was a trend of increasing number of admissions seen in every progressive year with 10 paediatric patients in 2009 and 28 in 2013 (Fig. 1). The mean age of the group was 16.1 yrs. On age wise distribution, 12(13.5%) patients were children (<12 years) and 77(86.5%) fell into adolescent group (12–18 years). Age of victims ranges from 9–18 years of age. Female preponderance is seen in both groups. 67 (75.28%) out of 89 were females. Majority of cases belonged to lower middle and upper lower class families according to Kuppuswamy socioeconomic scale (2007) [19] (Fig. 2).

3.2. Pattern of burns

The average percentage burn surface area involved in children and adolescent group is 72.4% and 58.7% respectively. Most of them had deep partial thickness burns. Area wise involvement distribution mainly involved head & neck area (82.02%), upper limbs (71.91%), anterior trunk (29.21%), posterior trunk (17.98%), lower limbs (11.23%) and genitalia (5.62%).

3.3. Cause of suicide

Most of our subjects had a precipitating event like not getting something they want, demands not met and personal issues with underlying personality changes that led them to commit self-immolation (Table 3). Kerosene, a commonly used household fuel for cooking in India was found to be the main agent used for self-immolation.

Table 1 – Total burns admissions (2009–2013).

	Paediatric	Adult	Total
Male	694(8.4%)	3175(38.5%)	
Female	745(9.03%)	3632(61.5%)	
Total	1439(17.4%)	6807(82.55%)	8246

Table 2 – Suicidal burns admission statistics (2009–2013).

	Suicidal burns		Total
	Paediatric	Adult	
Male	22(2.03%)	410(37.78%)	
Female	67(6.17%)	586(54%)	
Total	89(8.2%)	996(91.78%)	1085

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