



Burn injuries: self-inflicted patients

Queimaduras: pacientes autoinfligidos

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■ ABSTRACT

Introduction: Self-inflicted burn injuries lead to physical, psychological, and economic consequences not only to the victims but also to their families and the society. The prevalence of this type of accident varies greatly throughout the existing literatures. This study aimed to analyze the epidemiological profile, behavior, and lethality rate in patients with self-inflicted burn injuries who received treatment in a burn unit, as a way to contribute to the effective intervention to minimize the effects of risk factors and behaviors associated with this type of accident. **Method:** We conducted a retrospective study in which we analyzed medical records of patients hospitalized in the burn unit of Asa Norte's Regional Hospital, DF, Brazil, during the period between January 2008 and December 2012. **Results:** The study sample consisted of 88 patients with self-inflicted burn injuries, of whom 54.5% were female, with a mean age of 33 years and mean burned body surface area of 36%. The mean hospitalization time was 23 days. Open flame was the etiological agent in 97.7% of the burn cases, and alcohol was the accelerating agent in 68.2% of these cases. The lethality rate was 32.9%. Sixty patients had comorbidities, with psychiatric disorders and alcoholism being the most common. **Conclusion:** The patients with self-inflicted burn injuries were generally women, with a mean age of 33 years, who used alcohol as accelerating agent. The mean body surface area affected was 36%. Of the patients, 32.9% had associated psychiatric disorders. The lethality rate was 32.9%. From a social perspective, public measures should be established to detect potential patients in order to administer appropriate therapies.

Keywords: Burn injuries; Self-destructive behavior; Suicide; Burn units.

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■ RESUMO

Introdução: As queimaduras autoinfligidas geram consequências físicas, psicológicas e financeiras não só para a vítima, mas também para familiares e para sociedade. A prevalência desse tipo de acidente tem ampla variedade na literatura. O trabalho tem como objetivo analisar o perfil epidemiológico, a conduta e a taxa de letalidade dos pacientes com queimaduras por autoagressão atendidos em centro de tratamento de queimados, como uma forma de contribuir para intervenção efetiva em fatores e comportamentos de risco para tais acidentes. **Método:** Estudo retrospectivo por meio da análise dos prontuários de pacientes internados na Unidade de Queimados do Hospital Regional da Asa Norte, Brasília - DF, no período de janeiro de 2008 a dezembro de 2012. **Resultados:** Foram incluídos no estudo 88 pacientes autoinfligidos, 54,5% do gênero feminino, idade média de 33 anos, média da superfície corporal queimada de 36%. A média de tempo de internação foi de 23 dias. A chama aberta foi o agente etiológico das queimaduras em 97,7% dos casos e o álcool foi o agente acelerador em 68,2%. A taxa de letalidade foi de 32,9%. Sessenta pacientes apresentavam comorbidades, sendo os distúrbios psiquiátricos e o etilismo os principais. **Conclusão:** As vítimas de queimaduras por autoagressão são geralmente mulheres, com idade média de 33 anos, utilizando álcool como agente da queimadura, afetando em média 36% da superfície corporal, com distúrbios psiquiátricos associados em 32,9% e com taxa de letalidade de 32,9%. No âmbito social, deve-se pensar em medidas públicas que detectem os pacientes em potencial para que seja instituída terapêutica adequada.

Descritores: Queimaduras; Comportamento autodestrutivo; Suicídio; Unidades de queimados.

INTRODUCTION

Burn injuries are considered a public health problem in Brazil and the world owing to its high incidence, morbidity, and lethality^{1,2}. A report from the World Health Organization (OMS) showed that burn injuries are the fifth leading cause of violent deaths worldwide, having a death toll of more than 320,000 people every year³. Self-inflicted burn injury, though severe, is an uncommon type of burn injury, which is a frequent cause of hospitalization in burn units⁴⁻⁶.

Self-inflicted burn injuries lead to physical, psychological, and economic consequences not only to the victims but also to their families and the society⁷. The prevalence of this type of accident varies considerably throughout the world, accounting for 1.95% of the total burn hospitalizations in the United States and up to 40.3% in other regions of the world, such as the Middle East⁷⁻¹³.

This type of injury may be characteristic of a suicide attempt or self-punishment. Awareness that these burn injuries are closely associated with several

psychiatric disorders and sociocultural factors is important^{7,14}.

OBJECTIVE

In Brazil, the statistical data and preventive actions on this subject are still scarce, being restricted to a few burn treatment units^{6,15}. This study aimed to analyze the prevalence, characteristics, etiology, and lethality rates in patients with self-inflicted burn injuries who were hospitalized in a regional burn unit in Brazil, as a way to contribute to an effective intervention to minimize the effects of risk factors and behaviors associated with this type of accident.

METHOD

This was a retrospective and descriptive study performed by analyzing the medical records of patients hospitalized in the burn unit of Asa Norte's Regional Hospital, DF, Brazil, during the period between January 2008 and December 2012.

Patients who were hospitalized in the burn unit of the Asa Norte's Regional Hospital because of self-inflicted burn injuries resulting from a suicide attempt and for whom duly completed medical records were available were included in the study. Patients who were hospitalized because of accidental burn injuries, patients treated in the emergency service of the hospital and with ambulatory regimens, and patients with self-afflicted burn injuries without the intention to commit suicide were excluded from the study.

The variables analyzed were age, sex, percentage of burned body surface area, etiology of the burn injury, infectious complications, history of psychiatric disorders, surgical interventions (debridement and skin grafts), hospitalization period, and lethality rate.

This study was approved by the ethics committee of the Health State Secretary of Brazil, DF, Brazil, under No. 643,696.

RESULTS

We analyzed 1326 medical records and selected for this study all patients with self-inflicted burn injuries. The number of samples selected was 88, corresponding to 6.63% of the total number of patients hospitalized in the burn unit during the study period, with an average of 18 cases per year, ranging from 13 to 23 cases.

In the study sample, 48 patients (54.5%) were female and 40 (45.5%) were male. Their ages ranged from 14 to 73 years, with a mean of 33 years. The percentage of burned body surface area ranged from 3% to 94%, with a mean of 36% (Table 1). Of the patients evaluated, 56.8% had third-degree burns, while the remaining patients has second- and/or first-degree burns. The mean hospitalization time in the burn unit was 23 days, ranging from 1 to 104 days. As for the agents used for suicide, we observed that open flame was responsible for 97.7% of the cases and alcohol was the accelerating agent used by 60 patients (68.2%). The parts of the body that were most affected were the torso (90.9%), upper limbs (84%), face (68.2%), lower limbs (59%), and perineum (7.9%).

The lethality rate was of 32.9% (Table 1). In these patients, death occurred between the first and the 29th hospitalization day, with a mean survival time of 8.4 days.

In our study sample, 60 patients (68.2%) had one or more comorbidities such as psychiatric disorders (n = 29, 32.9%), history of alcohol abuse (n = 27, 30.7%), smoking history (n = 13, 14.8%),

Table 1. Epidemiological and clinical aspects of the patients with self-inflicted burn injuries who were hospitalized in Asa Norte's Regional Hospital, DF, Brazil, between January 2008 and December 2012.

Sex	n	%
Female	48	54.5
Male	40	45.5
Age (years)	n	%
< 30	39	44.3
30-50	42	47.7
> 50	7	7.9
Percentage of Burned Body Surface Area	n	%
≥ 30%	45	51
< 30%	43	49
Lethality rate	n	%
	29	32.9

history of drug abuse (n = 8, 9%), epilepsy (n = 4, 4.5%), systemic arterial hypertension (n = 3, 3.4%), diabetes (n = 2, 2.3%), asthma (n = 2, 2.3%), mental retardation (n = 1, 1.1%), and human immunodeficiency virus (n = 1, 1.1%) Of the patients evaluated, only one (1.1%) was homeless. Among the patients with self-inflicted burn injuries, 61 (69.3%) had infectious complications, especially bloodstream and wound infections.

Sixty-nine patients (78.4%) underwent surgical debridement, ranging from 1 to 9 procedures per patient. Of these patients, 42 received skin grafting, with the first grafting procedure performed on the 17th day of hospitalization, on average, ranging between the 10th and 44th day of hospitalization. Fifty-eight patients (65.9%) required blood transfusions during the hospitalization period.

DISCUSSION

Suicide attempt by burning is among the most remarkable forms of suicide. Of all the forms of self-inflicted injuries, it has the longest documented history and a strong cultural meaning and political impact worldwide^{16,17}.

Self-flagellation, the most painful of all the forms of suicide, is not a common form of suicide in Brazil and in the European countries¹⁸⁻²⁰. However, it is highly prevalent in some developing countries, especially in the Asian and African regions. Some studies show high self-flagellation rates in Iran, accounting for 25-70% of all the suicide cases²¹⁻²³.

The literature on suicides shows that men are more prone to commit suicide than women, whereas women are more prone to attempt suicide²⁰. This study, similarly to another Brazilian study, shows a predominance of females among the patients⁶. This is also observed in other studies performed in Iran²⁴⁻²⁷, Egypt, Zimbabwe, and Sri Lanka^{8,28}, but is in disagreement with the data collected from developed countries such as Canada, Australia, England, and Wales^{29,30}. However, some studies showed no sex differences in countries such as Russia and Italy^{31,32}. Socioeconomic factors, political protest, forced marriages, and previous partners are the motives that could explain the sex- and geography-related differences between suicidal individuals²⁵.

Suicide attempts accounted for 6.63% of the total hospitalized patients in the burn unit during the study period, showing a similarity to the data obtained by a previous Brazilian study⁶. These data are similar to those observed in Italy (4.4%)³³, Ireland (4.2%), United Kingdom (4.9%), Switzerland (6.8%)³⁴, and Australia (4.1%)¹⁹. However, these are in disagreement with the data referring to other regions of the world where suicide is the leading cause of extensive burn injuries and, consequently, death, such as India¹³, Iran²⁴, Egypt⁸, and Sri Lanka²⁸, corresponding to 24.8% of the hospitalizations in an Iranian burn unit²³.

In our study, open flame was the most common etiologic agent of burn injuries derived from suicide attempts, and alcohol was the most frequently used catalyst agent, which is in accordance with the finding of a previous study performed by Macedo et al.⁶. However, this differs from other countries such as Iran and India, where the catalyst agent of this type of burn injury is gasoline³⁵⁻³⁷.

Self-inflicted burn injuries, differently from accidental burn injuries, seem to cause more severe damages. In this study, the mean burned body surface area was 36%, which is lower than that reported in the previous study performed in this unit (38%)⁶. The mean hospitalization period was 23 days, ranging from 1 to 104 days. The hospitalization period is compatible with the extent of the burn injuries, complications, and behavior difficulties. The combination of all these factors can result in longer hospitalization periods and slower recovery process than those of patients with accidental burn injuries. In the patients with accidental burn injuries, the mean hospitalization period was 12 days and the mean burned body surface area was 14%³⁸.

The lethality rate of self-inflicted burn injuries during the first 48 h of hospitalization was 75% in Greece³⁹ and 47.9% in Iran³⁹. In this study, we observed a lethality rate of 32.9%. The reasons for the high lethality rate in these patients are the extent of the burn injury, the presence of infectious complications, and resistance to the treatment by the patients^{33,40}. The desire to die and the lack of cooperation tend to hinder prognosis. Psychiatric and psychological support help maintain the cooperation of patients and therefore facilitate the work performed by the medical doctors and nurses. The suicide attempt by burning is a strong predictive factor of mortality^{34,41}.

The presence of psychiatric disorders among the patients with intentional self-inflicted burn injuries seems to be common in the European, North American, and Middle Eastern countries. Depression was the most frequent psychiatric diagnosis, followed by schizophrenia³⁶ and alcoholism¹⁹. Interpersonal problems and marital discord seem to be the main motivations of self-inflicted burns in Brazil⁶, similarly in India¹³. Political protest is the least frequent motivation³⁶. In Brazil, ignorance of severe, or even fatal, consequences of intentional self-inflicted burn injuries leads to a significant proportion of these injuries, thus resulting in unintended deaths⁶. In this study, 68.2% of the patients had comorbidities, with psychiatric disorders being the most frequently reported. In Greece, 43% of the patients had a history of psychiatric disorders, with depression being the most frequent disorder observed³⁹.

CONCLUSION

The patients with self-inflicted burn injuries had more severe characteristics, as these patients tend to have a larger burned body surface area, longer hospitalization periods, higher infection rates, and higher lethality rates than the patients with other types of burn injuries. In burn units, psychological and psychiatric support are extremely important to the evolution of the clinical situation. Rehabilitation and reintegration of surviving patients into the community are important, given the severity of their injuries. From a social perspective, public measures that aim to detect potential patients should be established in order to administer appropriate therapies.

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