



ORIGINAL ARTICLE

Burns in epileptic patients: Pattern and outcome.

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Article Citation: Afridi RAK, Obaid S, Shahbazi HK, Tauqeer Z. Burns in epileptic patients: Pattern and outcome. Professional Med J 2024; 31(02):150-154. <https://doi.org/10.29309/TPMJ/2024.31.02.7970>

ABSTRACT... Objective: To determine the pattern and outcome of burns in epileptic patients. **Study Design:** Retrospective study. **Setting:** Plastic and Burn Unit, Lady Reading Hospital, Peshawar. **Period:** January 2021 to December 2022. **Material & Methods:** The research was conducted at the Plastic surgery and burn unit of Lady Reading Hospital Peshawar. Digital records of 35 epileptic patients admitted in the last five years were extracted. The demographics, burn pattern, total body surface area, level of burn, surgical outcome, complications, and length of hospital stay of epileptic patients were extracted from the electronic record. IBM-SPSS version 20 was used to analyze the data. **Results:** Over the last five years, 35 epileptic patients have been admitted to our unit. Males made up 28.6% of our patients, while females were 71.4%. The patient's average age was 24.14 years \pm 16.28 SD. The most common pattern in our patients was fire burn (62.9%), followed by scald (25.7%), and the least common pattern was 11.4%. 10 to 20% of body surface area burns were seen in 51.4% of patients, less than 10% in 20% of patients, and >20% burns in 28.6% of patients. The majority of the patients (37.1%) had a full-thickness burn, followed by mixed burns (31.4%), deep partial-thickness burns (20%), and superficial partial-thickness burns (11.4%). Twenty-eight patients stayed in the hospital for 1 to 14 days, 04 patients for 15 to 30 days, and 03 patients for 31 to 45 days. **Conclusion:** Epilepsy-related burns are a serious public health concern in developing nations, putting a significant burden on burn units due to the severity of the burns and the duration of hospital admissions.

Key words: Burns, Epilepsy, The Pattern of Burns.

INTRODUCTION

Epilepsy is a neurological brain function disorder that frequently results in injury.¹ This neurologic condition renders a person permanently disabled and makes them vulnerable to various causes.² Partial epilepsy is caused by various circumstances, such as a tumor or trauma to the brain's structure, and it's also known as temporal lobe seizures or focal seizures because it occurs in the brain's temporal lobe for a few minutes.³

Severe traumas, such as damage to the neck, head, limbs, and different degrees of burns, are frequently reported injuries connected with seizure attacks. Burn injuries are prevalent in epileptic patients, and prolonged contact with a burning object frequently results in death.⁴ Injuries are reported more severely in undeveloped nations because people have superstitious ideas about

this sickness and a misconception about how contagious it is.⁵ As a result, major injuries, such as temporary or permanent disability, cosmetic defects, and even death, have been documented. Although epilepsy is a global condition, it is frequently mistreated in low-income nations, which explains why it has an 80% prevalence rate.⁶

Different degrees of burn injuries have been documented among patients with a history of epileptic episodes in Pakistan, which is related to a misconception about the condition, which accounts for the higher occurrence in undeveloped countries.⁷ According to another study, epileptic individuals are 49% more likely than non-epileptic patients to experience burns.⁸

Several studies show a substantial link between

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Article received on: 31/10/2023
Accepted for publication: 02/01/2023

epileptic episodes and traumatic experiences. Research has been undertaken on this subject, indicating that patients with epilepsy are more prone to burn injuries than healthy people.⁹ Antiepileptic medicines are essential in preventing seizures from reoccurring, but they can have adverse effects.¹⁰ When a seizure occurs near the object that causes the burn, it is commonly connected with epileptic patients, demonstrating a solid and frequent link between epilepsy and burn injuries.¹¹ To avoid any fatal consequences, preventive measures must be taken, such as reducing the risks associated with developing such a situation, identifying vulnerable individuals, and using a specific therapy in the event of damage.

MATERIAL & METHODS

After receiving approval from the hospital's ethical committee, this retrospective study was carried out at the Burns and Plastic Surgery Unit, Lady Reading Hospital, Peshawar. Data was collected from the Burns and Plastic Surgery Unit's electronic record database. Our facility received a total of 11237 burn cases, 35 of which were epileptic patients. The demographics, burn etiology, total body surface area, burn depth, surgical outcome, complications, and length of hospital stay of epileptic patients were extracted from the computerized record. Cases brought to the burn unit owing to flame burn, scald, or contact with a hot surface were defined as a pattern of burn cases. A second or third-degree burn that covers less than 10% of the body, a second or third-degree burn that covers 10% to 20% of the body, and a second or third-degree burn that covers more than 20% of the body were defined as a total body surface area (excluding first-degree burn). The depth of the burn was used to determine the severity of the burn (superficial partial thickness, deep partial thickness, full-thickness, and mixed). Change of dressing, debridement, dressing, and tangential excision were used to define surgical outcomes.

IBM-SPSS version 20 was used to analyze the data. Frequencies and percentages were used for qualitative data, while the mean and standard deviation (SD) were calculated for quantitative

data. While the frequency with percentages was computed for categorical variables. The chi-square test was computed to compare categorical variables, and the student t-test was computed to compare numerical variables.

RESULTS

Over the last five years, 35 epileptic patients have been admitted to our unit. The patient's average age was 24.14 years \pm 16.28 SD. Most of our patients (54.3%) were between 11 and 30 years old. Twenty percent of patients were between 01 and 10 years, while 25.7 percent were between 31 and 56. Our patients were split into two groups: males (28.6%) and females (71.4%) (Table-I).

The most common pattern in our patients was fire burn (62.9%), followed by scald (25.7%), and the least common (11.4%) was contact with hot surfaces (Table-II). According to total body surface area burned, 51.4% of patients had burns between 11% and 20%, 20% had injuries less than 10%, and 28.6% had burns greater than 20%. In terms of burn depth, the majority of patients (37.2%) had a full-thickness burn, mixed burns were seen in 31.4% of patients, deep partial-thickness burns were seen in 20% of patients, and superficial partial-thickness burns were seen in the least (11.5%) (Table-II). The trunk was affected in 62.9% of cases, the upper limb in 65.7% of cases, the lower limb in 57.1% of cases, the head and neck in 34.3% of cases, and the genitalia in 5.7% of cases, according to the site of the burn involved.

Twenty-eight patients (80%) stayed in the hospital for 01 to 14 days, 04 patients (11.4%) for 15 to 30 days, and 03 patients (8.6%) for 31 to 45 days (Figure-1).

Eight patients had full-thickness loss after the burn, one patient had contracture after the burn, and one had ectropion after the burn. In one of the issues mentioned above, a split Skin Graft (SSG) procedure was undertaken.

Parameters	Distribution of Patients	Frequency (%)	Total
Gender-wise distribution	Male	10 (28.6%)	35 (100%)
	Female	25 (71.4%)	
Age-wise distribution	1-10years	07 (20%)	35 (100%)
	11-30 years	19 (54.3%)	
	31-60 years	09 (5.7%)	

Table-I. Basic characteristics of epileptic patients (n=35)

Parameters	Distribution of Patients	Frequency (%)	Total
Pattern of Burns	Fire burns	22 (62.9%)	35 (100%)
	Scald burns	09 (25.7%)	
	Contact with a hot surface	06 (11.4%)	
Body surfaces area involved	<10% BSA	07 (20%)	35 (100%)
	11 to 20% BSA	18 (51.4%)	
	>20% BSA	10 (28.6%)	
Depth of body	Full-thickness	13 (37.1%)	35 (100%)
	Mixed burns	11 (31.4%)	
	Deep partial-thickness	07 (20%)	
	Superficial partial-thickness	04 (11.5%)	

Table-II. Characteristics of burns in epileptic patients (n=35)

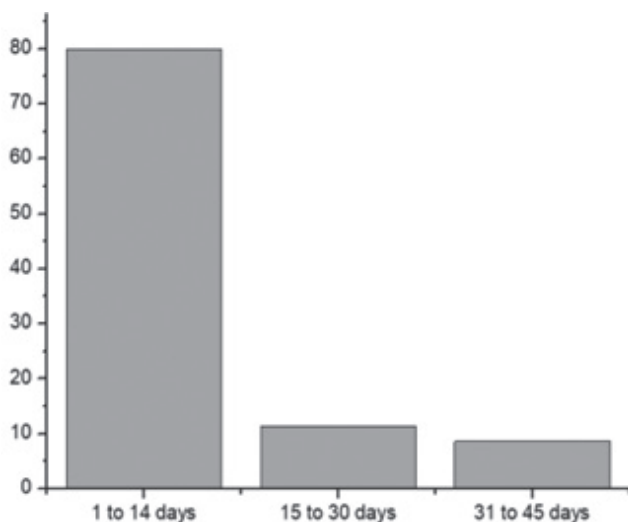


Figure-1. Hospital stay of epileptic patients with burns (in days)



Figure-2. Area-wise deep thickness burns in epileptic patients (A: Scalp-grafted; B: Scalp and forehead; C: Face, right ear, and neck; & D: Tip of shoulder)

DISCUSSION

The rational treatment of epilepsy necessitates using the proper antiepileptic medications in the correct dosage. Patients with poorly treated epilepsy are at risk of developing burns, which can be fatal. According to Spitz’s study, twelve percent of patients with severe burns required serious medical treatment.¹² In order to treat refractory instances, you’ll need expert counsel.

In their study, Zerbaliyev E et al. found that epilepsy was the cause of burns in 1.6% of patients. Epileptic burns are more common in third-world nations with no effective epilepsy management.¹³ The prevalence of convulsive burns in patients with epilepsy was 6.9% in an overseas community study¹⁴, compared to 3.9% in the normal population.

According to the studies, the risk of epilepsy and burns is continuously higher in women than in men.¹⁶ According to Akhtar et al.¹⁷, the majority of epilepsy patients were women who were injured in the kitchen while cooking. These studies are comparable to ours; however, the frequency of female patients in our study was higher than that of male patients.

The prevalence of epilepsy remains constant

during the third and fourth decades of life in the majority of studies undertaken in developing nations; however, following the fifth decade, the frequency of epilepsy normally drops. This remark is consistent with our findings, as the bulk of the burn cases (54.3%) in our study were between the ages of 11 and 30 years

According to Josty et al.¹⁸, most epileptic burn cases were caused by scalding. According to Akhtar et al.¹⁷, 55% of epileptic patients suffered burns as a result of scalding. Flame burn (62.9%) was the most common cause of burns in epileptic patients in our study, followed by scald (25.7%). Our findings contradict the findings of the previous studies. However, in keeping with our findings, Lam NN et al.¹⁹ identified flame burn as a prominent cause of burns in epileptic patients.

The site's involvement in burn injuries in epileptic patients is also a major concern. The upper limb was the most common source of injury in epileptic patients, according to Botan²⁰ and Faurie et al., The upper limb was implicated in the majority of cases (65.7%), followed by the trunk (62.9%), lower limb (57.1%), head and neck (34.4%), and genitalia (5.7%) in our study.

In our study, 51.4% of the cases had total body surface area (TBSA) burns ranging from 10% to 20%. In 28.6% of the cases, the TBSA burn was greater than 20%, while 20% of the patients had less than 10% TBSA burn. The deep burn was found in 77% of cases by Akhtar et al.¹⁷ According to the company, seventy-two percent of Rimmer's patients²² had deep burns.

The presence of epilepsy in burn patients appears to lengthen their hospital stay compared to other conditions. In a study conducted by Boschini et al.²³, it was discovered that epileptic patients had a statistically significant longer hospital stay than those who did not have epilepsy. In addition, epileptic patients required a longer hospital stay, according to our findings. In our study, the average hospital stay was 12.57 days. Eighty percent of the patients had a stay of one to fourteen days in the hospital, whereas 8.6% required a stay of 31 to 45 days.

CONCLUSION

Our study concludes that epilepsy-related burn events are a serious public health concern in developing nations, putting a massive burden on burn care units due to extensive burns and lengthy hospital admissions. To avert fatal burn events in epileptic patients, caretakers of epileptic patients should be taught through prevention management programs offered by government and commercial health organizations.




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2	Sadaf Obaid	Data collection.	
3	Hamza Khan Shahbazi	Analysis.	
4	Zahra Tauqeer	Interpretation.	