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Burn injury in epileptics: The trend and risk factors in the middle belt of Ghana

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ABSTRACT

Background: Burns is one of the injuries associated with epilepsy. Unfortunately, epileptics are afflicted with severe burns when they come in contact with burn substances, due to loss of consciousness while seizing.

Objective: This study is designed to inform stakeholders about the incidence, outcomes and trends of burn accidents among epileptics predominantly in the middle belt of Ghana.

Methods: A retrospective study of all burn cases (May 2009 to April 2016) resulting from seizures reporting at the Komfo Anokye Teaching Hospital was undertaken. Patient demographics, burns aetiology, total burnt surface area and length of admission were obtained from stored electronic data (Excel) of the Burns Intensive Care Unit (BICU). History related to burn injury were obtained from patients' folders. Data was statistically analysed using Excel version 2013.

Results: Epileptics formed 3.1% (n = 21) of the total BICU admissions and average annual incidence of 2.6 persons per year. Majority of the patients were females (71.42%). Age group 11–30 years formed the preponderance of our patients (n = 18, 85.7%). Only one 0–10 years old and no ≥50 years old patient was admitted. Scalds was the major aetiology (81.0%, n = 17). Ninety-five percent of the patients suffered moderate to major burns. Mean TBSA = 19.1%. Average days on admission was 69.1 days. Mortality rate was 9.5%.

Conclusion: Though burns among epileptics is comparatively low in the middle belt of Ghana, it is important that stakeholders continually educate the public on epilepsy and burns prevention.

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1. Introduction

Epilepsy is a neurologic disorder often associated with injuries and trauma [1] and considered a comorbid risk factor [2]. Burns is one of the injuries popularly associated with epilepsy [3]. Unlike other burn victims, when epileptics sustain burn injuries during a seizure, the result is often fatal [4] due to prolonged contact with the burn source [5]. Potential rescuers fail to rescue them because of the superstitious beliefs such as visitation by evil spirits and curse attached to the disease and the misconception that the disease is contagious [6]. As a result, victims are left to their fate

and plagued with severe injuries, temporal or permanent disabilities, disfigurements and in worst cases, death. The situation has been the same in most Low-Middle-Income Countries (LMICs) where epilepsy prevalence is high and often untreated. In rural Ethiopia for example, epilepsy was the cause of 44% of adult burns, most of them necessitating hospital admissions [7]. In Zambia, within a year, 31% of epilepsy patients reporting to the Chikankata Hospital were involved in burns or a fall which required hospitalization [8]. In rural Bangladesh, 0.7% of deaths in women (15–44 years old) were as a result of fall in fire during a seizure experience [9]. Thirty out of fifty-four epileptic patients also admitted in a burns unit in India required surgical intervention for effective burns management [2]. In Pakistan, Liaquant University Hospital within 5 years admitted 54 epileptics with burn injuries, who were consequently afflicted with varying degrees of negative burn

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sequelae [1]. It is very disheartening that superstitious beliefs, misconception about the disease being contagious and the horrendous social stigma associated with the disease remain the major reasons for the high incidence of burn accidents among epileptics [1,2,4–9].

A cohort study by Prasad et al. revealed that the risk of epileptics getting involved in burn accidents is 49% higher than individuals without epilepsy [10]. This and many other country and community specific studies [5,11,12] have helped most developed countries to move stride length in reducing burns in epileptics. Country and community specific studies are vital to inform stakeholders on the trends, prevalence and outcomes in their country or communities in order to formulate policies and management practices, specific and effective to their regions. This will help reduce the prevalence of burn accidents among epileptics.

Unfortunately, Ghana has no clinical assessment in literature on this subject: burns in epileptics. It is for these reasons that we present a study of the incidence and outcome of burn accidents among epileptics admitted at the BICU of Komfo Anokye Teaching Hospital (KATH), Ghana.

2. Materials and methods

2.1. Study setting

Komfo Anokye Teaching Hospital located in Kumasi is the second-largest hospital in Ghana. It is the main referral hospital for Ashanti, Brong-Ahafo, Northern, Upper East and Upper West Regions (the middle belt of Ghana), and the only tertiary health facility in the middle belt of the country. The hospital was built in 1954 and converted into a teaching hospital in 1975, with its affiliation to the School of Medical Sciences of the Kwame Nkrumah University of Science and Technology (KNUST). KATH currently has about 1000 beds in the old block and an additional 500 in the newly commissioned Accident and Emergency Center. The Surgery Directorate is among the nine directorates in KATH which includes the Division of Plastic and Reconstructive Surgery (DPRS). The Burns Intensive Care Unit is a section of the DPRS and is located in the new Accident and Emergency Center. The BICU has 6 room suits, fully furnished with the state of art equipment for severe burn patient management.

2.2. Study design

A retrospective study of all burn cases resulting from seizure attacks reporting at the BICU of Komfo Anokye Teaching Hospital was undertaken. Data was obtained from stored electronic data (Excel) of the Burns Intensive Care Unit. Data from May 2009 to April 2016 (8 years) were analysed. Patient demographics, burns aetiology, total body surface area and length of admission were obtained from the stored electronic data. Severity of burn was described in terms of depth and size. Minor burns: a first or second degree burn that covers less than 15 percent of an adult's body or 10 percent of a child's body. Moderate burns: second degree burns that cover more of a patient's body or a third degree burn that covers less than 10 percent of a patient's Body Surface Area (BSA). Major burns: third degree burns that cover more than 10 percent of a patient's BSA [16]. History related to burn injury were obtained from patients' folders. Only patients who had history of seizures prior to burns were included in this study. Data were statistically analysed using Microsoft Excel Version 2013.

3. Results

Over the 8-year period, a total of twenty-one epileptic patients were admitted at our BICU with severe burn injuries. This repre-

sents 3.1% of the total admissions (n = 681) in the unit over the period stated. The average annual incidence was 2.6 persons per year. Majority of the patients were females (see Fig. 1).

Age group 11–30 years formed the preponderance of our patients (n = 18, 85.6%). There was only one patient between 0 and 10 years and two patients within 31–49 years age bracket. No ≥ 50 years old with burn injuries resulting from a seizure attack was seen at our BICU.

Scalds was the major aetiology (see Fig. 2). More than half of the patients suffered moderate burns (n = 11), followed by major (n = 9) and then minor burns (n = 1), thus, 95.2% of patients had moderate to major burns.

The data also indicates that the average Total Body Surface Area (TBSA) burnt was 19.1%.

Seven patients spent more than 90 days on admission, 8 patients spent between 14 and 90 days and 4 spent less than 14 days on admission. Two deaths were recorded with mortality rate of 9.5% (Table 1).

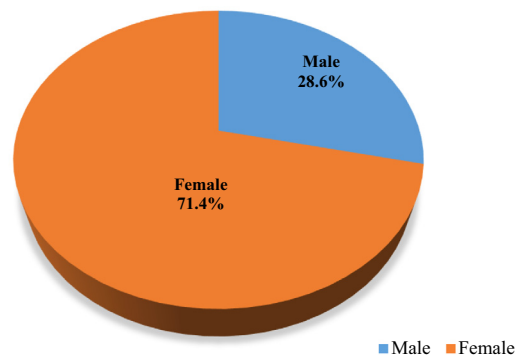


Fig. 1. Sex distribution.

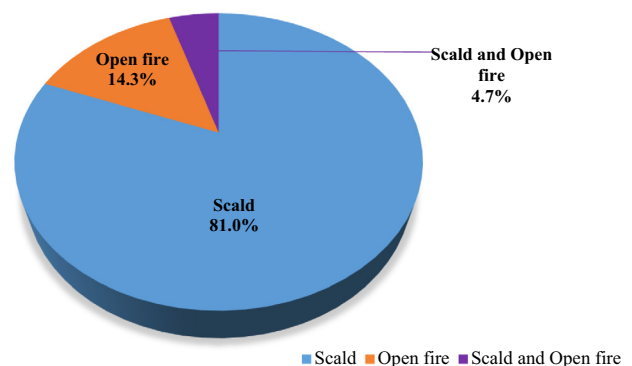


Fig. 2. Aetiology of burns among epileptic burn patients admitted.

Table 1
Days on admission and mortality.

Days on admission	Frequency	Percentage (%)
<14	4	19.0
14–31	3	14.3
32–49	3	14.3
50–64	1	4.8
65–90	1	4.8
>90	7	33.3
Total frequency	Mortality	Mortality rate (%)
21	2	9.5

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