

A profile of patients admitted with burn injuries in selected tertiary hospitals in Kano, Nigeria: a five year retrospective study (2007 – 2011).

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Abstract

The study was a five year (2007 – 2011) retrospective study on the profile of patients admitted with burn injuries in selected Hospitals in Kano. The case note of admitted burn patients were reviewed in the Hospital's record department. The following data were extracted from the case notes using a Proforma: Age, gender, cause of burns, percentage of burns, body area affected, Complication of burns, referral to physiotherapy. The data collected was summarized using descriptive statistics of frequency tables and analyzed using inferential statistics of Spearman's Rank Order correlation to find the relationship between age and total body surface area, using statistical Package for Social Sciences (SPSS).

A total of One hundred and fourteen (114) patients with burn injury were identified, Children less than ten years were the age group most commonly involve in burn injury according to this study. It was observed in this study that gender is an important epidemiological determinant for burn injuries with male preponderance. The cases of flame burns accounted for highest number of the burn cases reviewed (44.7%) followed by scald burn, electrical and chemical burns in that order. Over 90% of the burn injury cases affected less than 50% total body surface area (TBSA), In addition the age of the patients with burn injuries had significant positive correlation with the total body surface area ($r=0.504$, $p=0.001$). The common body areas affected was head, neck and upper limb followed by chest, abdomen and lower limbs. The least commonly affected body areas was upper back, lower back and perineum. Twenty patients (20) developed complications out of the 114 patients reviewed; the commonest complication was contracture, ulceration, and septicemia occurring in that order. Most of these contractures set in before the patients were referred for physiotherapy management. However, a large proportion of the patients were referred to physiotherapy

Keywords: Pelvic floor; urinary incontinence; sexual function

Introduction

Burns are reported to be amongst the most prevalent traumatic injuries around the world[1], excluding road traffic injuries, they are the most common cause of accidental deaths in both the developed and developing countries[2]. Burns injuries result in profound morbidity and high mortality[3]. Morbidity has been shown to be as high as 50% in some studies[4] with mortality ranging from 4.6 to 29%[5].

In low income countries and vulnerable populations, burns injuries are reported to be the third most common cause of death in children age 5 to 14 years, with road traffic injuries and drowning being first and second respectively[6].

The epidemiology of burns varies from one part of the world to another and even in the same environment over a time period due to civilization, industrialization,

culture and societal changes[7]. The cost of managing burns has been reported to be high, and most developing countries including Nigeria cannot afford the high cost of providing modern burns care facilities[8].

The past few decades have seen many changes in burn care aimed at decreasing patient morbidity and mortality. The establishment of improved resuscitation, specialized burns cares centress, early surgery, nutritional support, and skin replacement techniques have decreased morbidity and mortality[9].

The presence of several risk factors such as contact with inappropriate petroleum product[10], domestic violence[11], accidents, harsh socio-economic situation, irregular electric power supply[12], absence of gainful employment coupled with greed, have been cited as a cause of the upsurge in pipeline explosion[13]. These

risk factors have confounded the epidemiology of burns in Nigeria.

Burns often result in severe deformity, disability, and adverse psychological reactions, which affect patients and their caregivers[14]. Previous studies in Nigeria have reported that flame burn was the commonest cause of burn injury in patients, because of petrol and kerosene[15], whereas chemical causes ranked second[16].

In Nigeria, most studies on the incidence, etiology, prevalence and demographic presentations of burns have longed been carried out[17,18,19]. Most of them are reviewed hospital cases with some few community based surveys[20,21]. In Addition, most of the existing studies were carried out in the southern part of Nigeria where most of the socio-demographic situation is different from the northern part[22].

This provided the background that motivated the researcher to carry out the study to provide information of the demographic and clinical profile of burns patients admitted in the tertiary health facilities in Kano State.

Methodology

The study is a five year (2007 – 2011) retrospective study on the profile of patients admitted with burn injuries in selected tertiary Hospitals in Kano.

Research Design

The study was a retrospective research design.

Population of the Study

All burns patients who were admitted at Aminu Kano Teaching Hospital (AKTH) and National Orthopedic Hospital (NOH) Dala Kano from 1st January, 2007 to 31st December, 2011 were targeted. This included Children and Adult, Male and Female.

Sample Size and Sampling Technique

A total study of all the cases of burn injury treated from 2007-2011 were studied. The study sample included all burns patients admitted at Aminu Kano Teaching Hospital (AKTH) and National Orthopedic Hospital (NOH) Dala Kano.

Data Collection Instrument

A proforma (Data collection sheet) was used to collect data from the case files.

Data Collection Procedure

Ethical approval to conduct this study was sought from the ethical committees of the selected Hospi-

tals. The case note of admitted burn patients were reviewed in the Hospital's record department. The following data were extracted from the case notes using the Proforma;

1. Age
2. gender
3. cause of burns
4. percentage of burns
5. body area affected
6. Complication of burns
7. Referral to physiotherapy

Data Analysis Procedure

The data collected was summarized using descriptive statistics of frequency tables and analyzed using inferential statistics of Spearman's Rank Order correlation to find the relationship between age and total body surface area, using statistical Package for Social Sciences (SPSS) version 16 at probability level of 0.05.

Results

A total of One hundred and fourteen (114) case files of patients who were admitted with burns injuries were obtained from Aminu Kano Teaching Hospital and National Orthopedic Hospital Dala, record department. It was observed that majority of the burn patients 58(50.9%) are less than 10 years of age. Male are predominantly more affected 68(59.6%) than female in the ratio of 1.5:1. this result is presented in table 1.

Furthermore, flame burn was the most common cause of burn injury 51(44.7%) followed by scald burn with 41.2% of patients. The least common cause of burn was chemical with 2.6% of patients as presented in table 2

Table 3 showed that in majority of the burn injury cases studied 52(45.6%), the injury affected less than 10percent of the total body surface area. Thirty nine patients (34.2%) had burn injuries affecting 11-20 % of their total body surface area while only 2 (1.8%) patients suffered burn injuries covering 51 -60% of the total body surface area as presented in table 3. In addition the age of the patients with burn injuries had significant positive correlation with the total body surface area ($r=0.504$, $p=0.001$). This result was presented in table 4

Table 5 showed the predominant body area affected were head, neck and upper limb accounting for 62(54.4%) of the burn injury cases while Upper back, lower back and perineum were less commonly affected accounting for 5(4.4%) patients. Table 6 showed that

Table 1: Descriptive statistics of Socio-demographic Characteristics

Socio-demographic	Data	n (%)
Age Group	0-10	58(50.9)
	11-20	16(14.0)
	21-30	13(11.4)
	31-40	15(13.2)
	41-50	11(9.6)
	61-70	1(0.9)
	Total	114(100)
Gender	Male	68(59.6)
	Female	46(40.4)
	Total	114(100)

n=frequency, %=percentage

Table 2: Distribution of Causes of Burn

Variables	n (%)
Scald	47(41.2)
Flame	51(44.7)
Electrical	13(11.4)
Chemicals	3(2.6)
Total	114(100)

n = Frequency, % = Percentage

Table 3: Distribution of Percentage of Burn

TBSA	n (%)
1-10%	52(45.6)
11-20 %	39(34.2)
21-30 %	15(13.2)
31-40 %	6(5.3)
51-60 %	2(1.8)
Total	114(100)

n = Frequency, % = Percentage TBSA=total body surface area

Table 4: Relationship between age and total body surface area of patient burn injuries

Variable	r	p
Age		
TBSA	0,504	0,001*

*significant at the 0.01 level TBSA=total body surface area

Table 5: Distribution of Body Area Affected

Variables	n (%)
Head, neck & Upper Limb	62(54.4)
Chest, Abdomen & Lower Limb	47(41.2)
Upper Back, Lower Back & Perineum	5(4.4)
Total	114(100)

n = Frequency, % = Percentage

Table 6: Distribution of Complications of Burns and rate of Referrals to Physiotherapy

Variables	n (%)
Complication	
Nil	94(82.5)
Contracture	17(14.9)
Ulceration	2(1.8)
Septiceamia	1(0.9)
Total	114(100)
Referral to Physiotherapy	
Referred	76(66.7)
Not Referred	38(33.3)
Total	114(100)

n = Frequency, % = Percentage

Table 7: Yearly distribution of burn injury

Variables	n (%)
Years	
2007	21(18.4)
2008	25(21.9)
2009	23(20.2)
2010	25(21.9)
2011	20(17.5)
Total	114(100)

n = Frequency, % = Percentage

94(82.5%) patients did not develop complications, while 17(14.9%) patients developed contracture. It was observed that About 76(66.7%) patients were referred to physiotherapy, 38(33.3%) patients were not referred.

Table 7 showed the number of cases of burn injury from January 2007 to December 2011. The year 2008 and 2010 recorded higher cases of burn injuries with 21.9% each while 2011 recorded the lowest number of cases of burn accounting for 17.5% of patients.

Discussion

Burn injury is an important cause of hospital admission. The study showed a profile of patients admitted with burn injuries in selected Hospitals in Kano from January 1st 2007 to December 31st 2011.

Children less than ten years were the age group most commonly involve in burn injury according to this study. This finding agrees with that of [23]. Lack of parental supervision and awareness of the surrounding have been identified as reasons for high incidence of burn in children according to [24].

It was observed in this study that gender is an important epidemiological determinant for burn injuries with male preponderance. Other studies have however identified a slightly lower male to female ratio [25] than

this study. This is understandable because the male is often adventurous and bread winners of the family especially in the Kano metropolis.

The cases of flame burns accounted for highest number of the burn cases reviewed followed by scald burn, electrical and chemical burns in that order. Although the cause of burn is known worldwide, there are variations according to regions as this study has documented flame burn as being of greater importance in the aetiology of burns in this area. This finding agrees with other findings within and outside Nigeria [26,27]. However these findings disagrees with the findings of a study Which observed that scald burn as the common cause of burn injuries [28].

In this study Over 90% of the burn injury cases affected less than 50% total body surface area (TBSA). This agrees with the study conducted in Irrua Specialist Teaching Hospital, Irrua Edo State, Nigeria. In addition the age of the patients with burn injuries had significant positive correlation with the total body surface area ($r=0.504$, $p=0.001$).

The common body areas affected was head, neck and upper limb with followed by chest, abdomen and lower limbs. The least commonly affected body areas was upper back, lower back and perineum. This finding disagrees with the findings of the study conducted in part of

Iran. This is understandable because the common age group involve in burn injuries is children, this age group make use of this part of their body often to carry out activity of daily living[29].

Twenty patients develops complications out of 114 patients reviewed, the commonest complication was contracture, followed by ulceration. The least occurring complication was septicemia. Most of these contractures set in before the patients were referred for physiotherapy management. Early referral to physiotherapy can help minimized contracture as stated[30]. However, a large proportion of the patients were referred to physiotherapy for management/rehabilitation.

Conclusion

The outcome of this study revealed male population as being at greater risk of burn injuries, Children less than ten years as being the age group most commonly involve in burn injuries, flame burn was identified as being of greater importance in the causation of burns, 90% of patients with burn injuries was less than 50% total body surface area (TBSA), In addition the age of the patients with burn injuries had significant positive correlation with the total body surface area and Physiotherapy intervention was not routinely employed in the management of burn injuries in the selected Hospitals.

Recommendation

Based on the findings of this study, the following recommendations were made:

- The government should introduce health education targeted towards burn prevention
- The government should create more employment opportunities and adequate housing to minimize adulteration of petroleum products in a bid to make money by unemployed youths which could lead to burn.
- There should be increase awareness among health workers on the need for early referral of all burns patients to physiotherapy
- There is need for government to establish a burn centre in each geographical zone of Nigeria.

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Conflict of interest:

The authors have declared no conflict of interest.