

Full Length Research Paper

A Prospective Study of Wounds in a Teaching Hospital in Northern Part of Nigeria

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Abstract

Acute and chronic wounds will continue to be an important health challenge in Africa as well as other parts of the world due to contemporary complex lifestyles that predisposes people to physical injuries and diseases. The aim of this study is to evaluate the relation between type of wounds and gender, age, therapeutic agents and routes of administration. A prospective study was conducted during October to January 2018 at the surgical department of Bingham University in Jos in Northern part of Nigeria. A comprehensive wound proforma was designed to record information on all wound cases reporting to the hospital. From 85 patients with wounds, 70 (82.4%) were male and 15 (17.6%) were female. Also from 72 patients with acute wounds, 60 (70.6%) were male and 12 (14.1%) were female. There was a significant relation between gender and type of wounds, majority of acute 20 (23.5%) and chronic wounds 4 (4.7%) were sustained by older men and women from 51years and above. There was no significant relation between age and type of wounds. Almost all the patients were prescribed analgesics for acute 70 (82.4%) and chronic 9 (10.6%) wounds, the relation between type of wounds and therapeutic agents was not statistically significant. Majority of the patients were placed on intravenous route of administration for acute wounds 62 (72.9%) and chronic wounds 12 (14.1%). The relation between type of wounds and routes of administration was significant. Gender and route of administration of drugs have significant impact on the type of wounds, therefore there is need to generate reliable and consistent information on the type of wounds and associated factors in order to design effective prevention strategies.

Keywords: Acute, Chronic, Wounds, Gender, Routes of administration.

INTRODUCTION

Wound is a circumscribed damage resulting in disruption of the continuity of the epithelial lining of the skin or other tissues in which integrity and/or protective functions of the tissue is compromised. In clinical setting, wounds are broadly categorized as either acute or chronic.

Surgical wounds, bites, burns, minor cuts and abrasions, and more severe traumatic wounds such as lacerations and those caused by crush or gunshot injuries are wounds caused by external damage to intact skin and are classified as acute wounds (Bowler *et al.*, 2001). These are wounds that are expected to heal within a predictable and specified time frame and with minimal intervention although anti-microbial therapy or surgical intervention may be necessary for severe wound such as gunshot wounds. In contrast, chronic wounds are most frequently

caused by endogenous mechanisms associated with a predisposing condition that ultimately compromises the integrity of dermal and epidermal tissue (Bowler *et al.*, 2001). Compromised tissue perfusion as a consequence of impaired arterial supply (peripheral vascular disease) or impaired venous drainage (venous hypertension) and metabolic diseases such as diabetes mellitus are pathophysiological abnormalities that may predispose to the formation of chronic wounds such as leg ulcers, foot ulcers, and pressure sores (Guo and Dipietro, 2010).

The non-healable wound has either inadequate vasculature or a coexisting factor that prohibits the healing process. In general, immunosuppressive therapy, tissue ischemia, poor wound repair, and other wound characteristics can all present risk factors for poor wound outcomes (Barbul, 2005). Treatment of wounds with inadequate vascular supply or certain coexisting medical conditions heal by secondary intention and require long term maintenance (Nick *et al.*, 2010).

Reliable and consistent information on wound management is important in evidence based safety strategies and prevention efforts. Data on wound assessment will also help in organization and delivery of acute and chronic wounds care. Therefore in this study, we examined the relation between type of wounds and associated risk factors in order to improve individual's quality of life and increase their ability to optimize their contribution to society.

Subjects and methods

This study was carried out prospectively at the Surgical Department, Bingham University Teaching Hospital, which has more than 1000 beds and is affiliated to Bingham University. The study was approved by the ethics committee of Bingham University.

Study population

A total of 85 patients who had surgery due to wounds at the teaching hospital affiliated to Bingham University from October 2017 to January 2018, were studied prospectively. Patients admitted to the hospital for more than 1 day were included, while outpatients and those who had surgery elsewhere before referral to our hospital were excluded.

Study method

Proforma forms were used to collect information from the medical records prospectively. Demographic characteristics, types of wounds, pharmacological agents and date of admission and discharge were all included in these forms.

Study limitation

As a result of limited resources, time constraints and its completeness and costs of wounds treatment, the study was limited to inpatients.

Data analysis

Categorical variables were summarized by descriptive statistics such as percentages. The relation between different types of wounds and variables such as sex, age, therapeutic agents and routes of administration was analyzed using Chi-square test.

RESULTS

More males (82.4%) were admitted for acute and chronic wounds. There was a significant relation between type of wounds and gender as shown in Figure 1.

DISCUSSION

Many studies investigating the influence of gender on type of wounds have produced similar results. Therefore, male gender is a dependent factor on acute and chronic wounds. Several studies revealed that males were more prone to acute and chronic wounds than females because men were involved in works, using motor vehicles and wider participation in physical and social activities such as alcohol consumptions (Builders and Oseni-Momodu, 2018 1; Nick *et al.*, 2013; Ameri *et al.*, 2016; Onwuezobe *et al.*, 2016). Since the incidence of wounds across gender did not change over time and males account for the majority of all the types of wounds, therefore gender significantly affect type of wounds in this study. This is in agreement with other Nigerian studies, in which a higher incidence of wound related cases were common with men (.Builders *et al.*, 2014).

There was no significant difference between types of wound and age because the historical and clinical features surrounding the wound vary, wounds must be evaluated and treated individually (Nick *et al.*, 2013), as a result the types of wounds differ from individual to individual (Oladeinde *et al.*, 2013). In this study, older people were more exposed to a higher relative risk of trauma to bone and ligament injuries, such as fractures and dislocations which is similar to studies conducted by (Smith, 2013). They also sustained complicated wounds such as diabetes, chronic leg ulcers. Research has shown that occupation and social life of the people in this Northern part of Nigeria are attributed to these types of wounds (Builders and Oseni-Momodu, 2017) this is similar to studies from other African countries Kenya, Ethiopia and Nigeria (Ogendi and Ayisi, 2011; 12, Onwuezobe *et al.*, 2016).

The treatment of wounds was based on the patient as a whole and not the wound alone, as well as the needs of

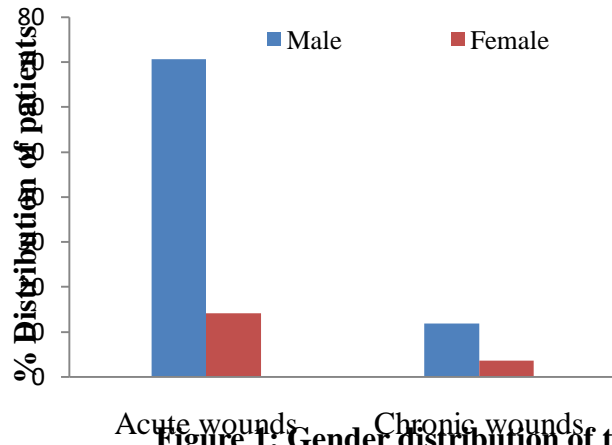


Figure 1: Gender distribution of the patients

Calculated value: 11.6, Critical value: 3.8

About (28.2%) of the patient belonged to the age group range of more than 51 years followed by 21-30years (27%). The relation between type of wounds and age was not significant as illustrated in Figure 2.

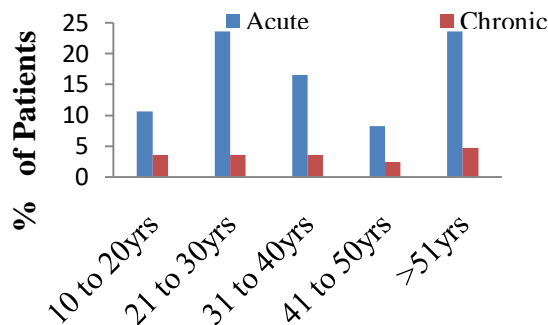


Figure 2: The relation between wound type and Age distribution

Calculated value: 5.2, Critical value: 9.5

Figure 3 indicates the relation between the type of wounds and medication prescribed. Analgesics top the most prescribed drug (92.6%) followed by antimicrobial agents (87.4%). There was not significant relation between type of wounds and therapeutic agents.

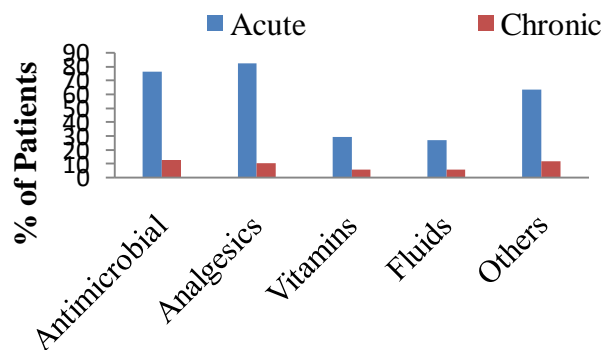


Figure 3: The relation between wound type and wound prescription

Calculated value: 0.2, Critical value: 9.5

Figure 4 shows the relation between type of wounds and routes of administration. Intravenous route (87.0%) had the highest route of administration followed by intramuscular (82.3%). There was a significant relation between the type of wounds and routes of drug administration.

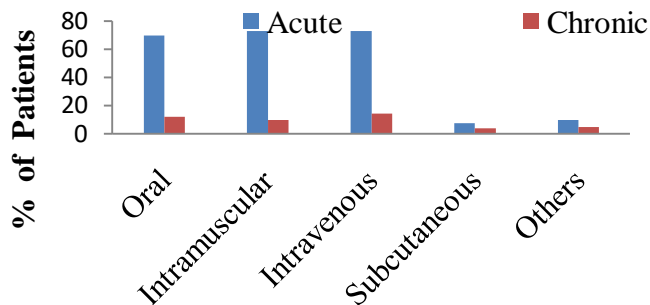


Figure 4: The relation between wound type and route of drug administration

Calculated value: 10.2, Critical value: 9.5

the individual therefore the relation between the types of wounds and therapeutic agents were not significant. Analgesic top the most leading therapeutic agent administered because majority of the patients experienced both acute and chronic pains due to damaged tissues as a result of fracture, burns, bruises, and inflammatory disorders which are nociceptive in nature (Builders and Builders, 2016). The patients also had wound pain caused by either damage or dysfunction in the (peripheral and central) nervous system which are therapeutically managed by narcotic and non narcotic analgesics. Wounds become complicated as a result of infection, therefore the second prescribing therapeutic agent was antimicrobial agents because they play an important role in the wound healing process and can delay the process by several mechanisms such as decreasing blood supply, promoting disordered leukocyte function, prolonging inflammatory and debridement phases and producing proteolytic enzymes (Eming *et al.*, 2007).

Other therapeutic agents included anti-inflammatory agents because they are prostaglandin synthesis inhibitors, studies have shown that they reduce inflammation, pain, and length of hospital stays in wound patients (Rowan *et al.*, 2015). The important role of other miscellaneous agents has also been linked to wound healing (Builders and Oseni-Momodu, 2017). Majority of the patients were treated for acute wounds, therefore the surgeons in this hospital conformed to prescribing guidelines for primary care clinicians who state that parenteral preparations should be reserved for patients with acute pain (Builders and Bassi, 2017). Also the significant relation between route of drug administration and the types of wounds was as a result of acute and

chronic wounds suffered by the patients which made both intravenous and intramuscular preparations to dominate in this study.

CONCLUSION

Acute and chronic wounds remain serious health challenges in health care system, therefore to establish the conducive environment for wound healing, it is essential to consider each wound individually. Also further studies are encouraged with higher numbers of patients to reduce the burden wounds.

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