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The trend of acute burns pre-hospital management

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ABSTRACT

Objective: To study the trend and knowledge of first aid administration of any kind among the burns patients and also to create awareness to the general public who mostly act as first aid givers who seem ignorant about the appropriate immediate care to render to the burns victim.

Methods: Pre-tested questionnaires were administered to the burns victims who had received or not some form of first aid at the scene of the burn injury.

Results: The study showed varied first aid knowledge and administration outcomes as a result of different substances such as water or sand, muddy water, starch, corn dough, cow dung, egg white, calamine lotion, gentian violet, ointments, creams, lotions, tooth paste *etc.* applied as first aid.

Conclusions: Burn injuries are common in our settings, a more reason for all to know the immediate intervention to give to victims of such accidents. The kind of first aid administered to burns victims possibly affects the burns management outcome. Thus, the earlier the right intervention implemented, the lesser the complications.

1. Introduction

Burns are injuries due to heat, chemicals, electricity, radiation, fire, hot liquids and steam; thus, burns can be caused by flame, ultraviolet (UV) radiation, hot liquids, electricity, lightning and certain chemicals^[1]. Through skin contact, severe burns affect muscles, fat and bones in either older people or children (mostly vulnerable)^[1]. To distinguish a minor burn from a serious burn, the first step is to determine the extent of

damage to body tissues. The three burn classifications, namely, first-degree burn, second-degree burn and third-degree burn will help determine emergency care^[1–3].

Anyone can be a victim of burns injury irrespective of the mechanism, be it thermal, chemical or electrical burns. The immediate intervention rendered to burns injury victims' in the form of first aid right after sustaining burns may grossly affect the extent and depth of the burns wound and largely has an impact on the final management. The aim of first aid is to stop the burning process, cool the burn, provide pain relief, and cover the burn. Even though standard guidelines have been drafted by various burns organization on the immediate care to render to burns victims, these are still not known to the general public.

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2. Materials and methods

A prospective cross sectional study was carried out from February 2013–September 2013. Pre-tested questionnaires were administered to all the burns victims who were admitted into the D2C Burns Ward in the Komfo Anokye Teaching Hospital during the period. Only patients who sustained scald, naked flame, acid burns, and had some substances applied on them or not at the site of injury were involved in the study.

2.1. Study setting

The Komfo Anokye Teaching Hospital in Kumasi is the second-largest hospital in Ghana and the only tertiary health institution in the middle belt of the country. It is the main referral hospital for the Ashanti, Brong Ahafo, the Northern, Upper West and Upper East regions of the country. The hospital was built in 1954 and affiliated to the School of Medical Sciences of the Kwame Nkrumah University of Science and Technology, Kumasi-Ghana.

2.2. Study limitations

The subjects in this study were limited to only patients admitted to Burns Ward D2C and not all the other wards in Komfo Anokye Teaching Hospital.

2.3. Ethical approval

Ethical approval for the study was obtained from the Committee on Human Research, Publications and Ethics of the

School of Medical Sciences, Kwame Nkrumah University of Science and Technology and Komfo Anokye Teaching Hospital, Kumasi, Ghana.

3. Results

Patients who agreed to partake in the study were 80; males = 48 (60%); females = 32 (40%); male:female ratio = 3:2 out of which $n = 59$ (74%) had a form of first aid (Figure 1), $n = 21$ (26%) had no first aid given them by anyone or by themselves; $n = 61$ (76%) in all were aware of some form of first aid while the remaining $n = 19$ (24%) had no knowledge of any first aid. Patients who sustained scalds were $n = 68$ (85%); naked flame $n = 9$ (11.3%) and acid burns $n = 3$ (3.8%).

Figure 1 shows the number of people who used the various substances as first aid for burns victims. Others included corn dough, calamine lotion, toothpaste, etc. Some forms of inappropriate first aid medications in this study are shown in Figure 2A–C.

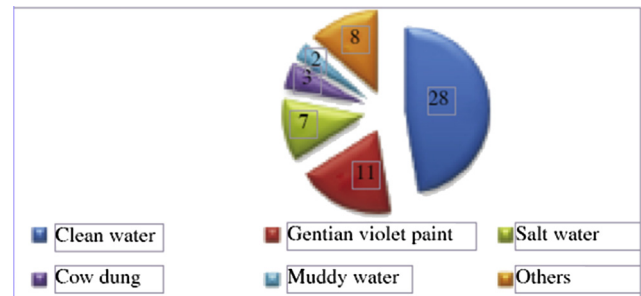


Figure 1. Substances used in first aid.



Figure 2. A. Muddy water with unknown concoctions used in first aid; bathing period in a bath on the ward. B. Cow dung used in first aid. C. Gentian violet used in first aid.

4. Discussion

Burns is one of the commonest domestic accidents. Invariably almost every family in the community has witnessed a relative with some form of burns which is major or minor burns. Minor burns are mostly treated at home while major burns require intensive and special care at the hospital.

Unfortunately, due to lack of knowledge on proper first aid and administration of infective material, burn patients are exposed to severe wound infection and unfavorable outcomes. Most people do not know the kind of materials or substance to be used in burns first aid and therefore rely on the use of substances such as cow dung, muddy water, corn dough and gentian violet in major burns. The use of cow dung, muddy water, corn dough and gentian violet has tremendous negative effects on burn wounds; they tend to increase wound infection due to the intensive reaction of these substances on the wound. Even though they are applied to cool down and to subsidize burns pain, they become difficult to remove when patients are sent to the hospital. It will require a whole process of peeling which enlarges the area and depth of the wound. It also puts the patients on a long healing process which increases their suffering. Creams, ointments, lotions or butter applied to minor burn injuries may also trigger infection. Adhesive tape on the skin around the burn may also cause further tissue damage and complicate the injury and must therefore be avoided. In the administration of first aid, burn blisters should not be broken or peeled skin broken^[4].

After cooling down the burns with running water, antibiotics such as silver sulphadiazine can be applied on the wound. Soothing lotion that contains aloe vera can also be applied on the burn area to relieve pain and swelling; 0.5% hydrocortisone cream may also help out. A sterile bandage should be used to cover burns especially patients with minor burns receiving treatment at home and if necessary, tetanus vaccination should be taken^[1,5,6].

Fire burns in the US have been reported to be the fifth leading cause of unintentional death causing about 3 700 deaths per year^[7]. It is also important for providers of first aid to gather information on the injury mechanism to ascertain whether victim suffered a head trauma as it will be important to help in further treatment when the patient is transported to the health facility^[8]. Irrigation and cooling burns area of a victim who suffered chemical burns can soothe the pain. It should also be noted that cling film should not be used as it may worsen the burn but rather wet dressings. Information on chemicals in powder form if available should be sent to the hospital where the patient has been transferred to so as to determine the kind of management for the patient^[9–11]. As much as possible, after first aid is given to the patient, transporting the victim to a health facility in order to access appropriate treatment is very critical. Psychologically and physically, burn patients suffer a great deal. Some persons develop scarring, contractures while others become functionally disable. This difficulty not only affects the individual but to larger extent the community as it results in dependence; thus the most important factor is preventing burns occurrences^[12–15].

Adverse effect of these non-conventional first aid treatments could delay healing process. Also, patients experience some form of trauma with substances like cow dung that get stacked on the burns wound are been removed prior to the burns wound

been managed aseptically when they arrive at the hospital. Removal of this “stacked first aid substance” in order to get a clear wound bed could result in increase in depth and total burns surface area. Moreover, there is a possibility of wound infection with the use of these non-conventional first aid treatments which can lead to complications like septicemia and even death. Use of other substances in the first aid medication for burns may aggravate the burns as a result of severe infection and could be fatal if infection gets to the blood stream which may cost a patient his or her life. In Uganda, a study conducted on 380 children reported that over 70% were given incorrect first aid treatment at home while others received none^[15]. Thus, the administration of improper first aid to burns victim does occur as seen similarly in the current study.

Stop, drop, and roll policy is advised for thermal burns after which the patient should be taken to the hospital. In chemical burns, the burns area should be irrigated with lot of water after which the patient should be taken to the hospital. However with electrical burns, the main supply of electricity should be turned off after which the patient should be taken to the hospital^[5].

Burn injuries are common in our settings, a more reason for all to know the immediate intervention to give to victims of such accidents. From the study conducted, it was found out that most people are unaware and/or lack knowledge on the appropriate first aid to give to victims of burns injuries. Others based their actions on cultural beliefs, that these non-conventional first aid treatments they give have some form of therapeutic benefit. There is therefore a great need for advocacy and awareness creation in the communities on the proper immediate first aid management of burns injury as the kind of first aid administered to burns victims usually affects the burns management outcome. Thus, the earlier the right intervention is implemented, the lesser the complications.

Conflict of interest statement

The authors report no conflict of interest.

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