

Nursing Care of Stevens Johnson Syndrome and Toxic Epidermal Necrolysis: Case Study of Dermatology Unit of Referral Hospital, Kenya

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Abstract

Introduction: Stevens Johnson Syndrome (SJS) and Toxic Epidermal Necrolysis (TEN) are adverse reaction to drugs whose manifestation affect the skin and mucous membranes whose outcomes may be life threatening and fatal. Supportive management has been proven to be the mainstay with well executed nursing care resulting in quality clinical outcomes. The aim was to evaluate the nursing care interventions in management of patients with SJS/TEN in the dermatology unit. **Methods:** Qualitative design was used, data were collected through observation of nursing care activities, informant interviews and focus group discussion with the nurses. Qualitative data were recorded in audio tapes and transcribed. Qualitative content analysis was used for the analysis of the transcribed texts. Study was approved by KNH/ERC and informed written consent from participants. Funding was obtained from KNH through the Research and Programs department. **Findings:** 20 nurses participated in the study. The commonest nursing care interventions were described as routine tasks initiated at clinical diagnosis and routinely performed. They include aggressive skin care, wound care, mucosal and eye care, infection surveillance and prevention practices and general patient monitoring for complications. Skin and wound care were most challenging part of nursing care due to severe erosion or exfoliation. Nurses do not use any specific guidelines of care but consider their role a key in quality outcomes for patients with SJS/TEN in this hospital.

Keywords

Nursing Care, Stevens Johnson Syndrome, Toxic Epidermal Necrolysis, Dermatology

1. Introduction

Stevens Johnson Syndrome (SJS) is a rare yet life threatening delayed type hyper-

sensitivity reaction [1]. Toxic Epidermal Necrolysis (TEN) or Lyell syndrome is a severe manifestation of SJS [1]. SJS with TEN is characterized as an adverse cutaneous drug reaction presenting with epidermal necrosis, extensive detachment of the epidermis, erosion of mucous membranes and severe constitutional symptoms [1] [2]. Symptoms appear 21 days after initiation of inducer drug by a syndrome influenza, eye burns, pharyngitis and exotherma which progress in a few hours and a complete picture is instituted [3]. In SJS, epidermal loss is 1% to 3% of the body surface area, with TEN epidermal loss is greater than 30% of the body surface area and includes the loss of epidermal cells of the skin, mucous membranes, eye and gastrointestinal system [4]. The degree of epidermal detachment that occurs has made especially TEN to be described as burn like condition [5]. Several drugs such as antibiotics, sulfonamides, pyrazolones, corticosteroids, analgesics (non-steroidal anti-inflammatory drugs), fluconazole, allopurinol, fluconazole, azithromycin, barbiturates and antiepileptic are associated with SJS [6] [7] [8].

Incidence of SJS varies from 1.2 to 6/million patient-years and for TEN is 0.4 - 1.2/million patient-years [7]. The mortality rates for SJS and TEN have decreased in the last decade [9] but moderately severe cases mortality rate of SJS and TEN could be up to 30% [10]. Mortality from TEN is thought to be three times higher than that of SJS [7]. In Guinea, mortality was 9.09% and 53.85% for SJS and in the case of TEN respectively in a total of 39 cases reported in a study [11]. Since the occurrence of HIV, the risk of cutaneous drug reactions is reported higher in patients with HIV than in the general population associated with some of the drugs in HAART, the treatment regimen proposed for HIV treatment in sub Saharan Africa [12]. The drug mainly nevirapine, was reportedly implicated in TEN with fatal outcome in pregnant women having received it in the context of preventing mother to child transmission of HIV [12]. Epidemiology and incidence of SJS/TEN in Kenya is not very clear, although HIV infection is an endemic condition in this country with estimated prevalence of 4.9% [13], the role of HIV in epidemiology of SJS/TEN in Kenya cannot be underestimated.

SJS and TEN are life threatening conditions and acute management requires intensive dermatological care with experienced dermatologists and specialist nurses with other multi-disciplinary healthcare work force to achieve favorable outcomes for patients. A well-executed multidisciplinary approach to care with early referral to an appropriate medical center [9] ideally in a burns unit for supportive management [5]. While emerging medical therapies like corticosteroids, intravenous immunoglobulins, cyclosporin are widely used [14] [15] and these could significantly impact outcomes, supportive care is the most universally acceptable intervention for SJS/TEN [16].

This study aimed at describing the nursing care and interventions in SJS/TEN management at the Kenyatta National Hospital. Nursing care is the fundamental aspect of nursing practice and in dermatological approach to management of

SJS/TEN, nursing care is paramount. Nursing care constitute specific activities which are planned and directed towards wellbeing of the patient with SJS/TEN. They includeskin and wound care, preventing infections, ensuring nutrition to promote wellbeing and healing, replacing fluids and electrolytes, controlling the environment and providing effective pain management. No studies have been done to describe nursing aspects in the care for patients with Steven Johnson Syndrome/Toxic Epidermal Necrolysis in our setting.

2. Methods

2.1. Study Design and Setting

A qualitative study design (explorative study), this was a case study of dermatology unit, Kenyatta National Hospital. A case study examines a single unit within the context of its real life environment [17] thus, nursing unit of dermatology ward was the unit of study. The study involved an in-depth analysis of patient care interventions while data was collected through observations, interviews and focus group discussions.

Kenyatta National Hospital, is the largest hospital in Kenya. It is a public, tertiary, referral hospital and the teaching hospital of the University of Nairobi, College of Health Sciences. It has a bed capacity of over 2000, with 50 in patient wards, 22 outpatient clinics and 24 theatres. However, due to congestion, the patient numbers can rise as high as 3000. The study was conducted in a dermatology unit, a part of general medical wards. Medical units are located in the 7th and 8th floor (the unit specialties include endocrinology and communicable disease ward 8D, gastroenterology ward 7D, respiratory and dermatology wards 7C, renal wards 7A, hematoncology wards 8C, Neurology and rheumatology wards 7B, Endocrinology wards 8B, Cardiology wards 8A. The nursing unit serves both in patient dermatology and outpatient dermatological procedures including phototherapy treatment. The clinical team constitutes registered nurses, consultant dermatologists, resident medical post graduate students, clinical nutritionists and physiotherapists on duty a daily basis.

2.2. Population and Sampling

The study targeted all nurses who work in the dermatology ward of KNH. A total number of 20 nurses work in the unit as well as unit in charge. The study participants were purposefully sampled for focus group discussions and interviews. For observations sessions nurses were randomly selected in any case they were involved in nursing tasks, during care for patients. Key informants were purposefully selected from nurse manager and her assistant of the shift.

2.3. Data Collection Procedures

Data collection was done by means of observations, individual interviews and focused group discussions. Data sources included demographic questionnaire, interview transcripts, and fieldnotes. Eight observations sessions were conducted

to assess and evaluate nursing care practices for patients and procedures in dermatology ward (7 C) during routine care over the whole period specifically pertaining to SJS/TEN cases. Observation days were randomly scheduled to avoid bias or effect from participants. 2 focus group discussions were conducted with nurses, as well as a total of 14 interviews (12 with individual nurses who volunteered to be interviewed and 2 nurse managers were key informants). The discussion was led by research assistants and scheduled on different days. Patient data was collected from review of case files to collect any relevant clinical data.

2.4. Data Quality and Assurance

Quality of data collection process was assured by first training of research assistants on the content and qualitative data collection procedures. The two research assistants were bachelor of nursing students and were allowed to work in the unit two weeks prior to the data collection in order to familiarize themselves with nursing activities and personnel of the unit. The study tools were developed by the principal investigator and were pretested in the burns unit within the hospital. Observations were conducted by the two assistants independently for a period of three months. The investigator was monitoring the data collection activities on a daily basis to ensure trustworthiness. The trustworthiness of qualitative research is often presented using terms such as credibility, dependability, conformability, transferability and authenticity [18]. Various strategies exist to establish trustworthiness in qualitative studies [19]. In this study, the researcher was guided by issues identified and formulated on checklist presented by Satu in an attempt to improve the trustworthiness of a content analysis in qualitative study [18]. Each phase from data collection to reporting of results was taken into consideration in this study.

2.5. Analysis Procedures

The interviews were recorded in audio tapes, field notes were recorded in note books. Transcription was done verbatim and verified by two transcribers then data cleaning was done to remove repetitions and subjected to NVIVO analysis software version 9. Content analysis was used to analyze the qualitative data in which themes were developed. Content analysis is designed to classify the words in text into a few categories chosen because of their theoretical importance in the study (Burns, 2009).

2.6. Ethical Permissions

Study approval was sought from Kenyatta National Hospital and University of Nairobi Ethics and Research Committee (UON/ERC). Funding was obtained from KNH research and programs department. A written informed consent and verbal consent was obtained from participants during observation sessions, and during interview sessions, however participation was on voluntary basis.

3. Results

3.1. Participants Characteristics

20 nurses participated in the study. The majority (65%) of nurses was in age group of 41 - 50 years and 14 were female and 6 were male as expected in a nursing career which is female dominated. The most common nursing qualification is diploma (70%) Most of the nurses have had 10 - 15 years working experience in a dermatological unit (**Table 1**).

3.2. Description of Nursing Specific Interventions for Patients with SJS/TEN

In qualitative research, the findings are often too difficult to understand owing to the way they are presented [20]. The best strategy is to translate the findings into thematic statements in order to enhance the understanding. Again, the complexity of analysis of an explorative study cannot be overemphasized, it is up

Table 1. Demographic characteristics of participants.

Participant's characteristics (n = 20) Freq. Percent	
Age (yrs.)	
21 - 30	3 (15%)
31 - 40	2 (10%)
41 - 50	13 (65%)
Above 50	2 (10%)
gender	
F	14 (70%)
M	6 (30%)
level of training	
Masters	1 (5%)
Bachelors	1 (5%)
Certificate	4 (20%)
Diploma	14 (70%)
job description	
Assistant manager	1 (5%)
Bedside	18 (90%)
Manager	1 (5%)
Nursing experience (yrs.)	
0 - 5	5 (25%)
11 to 15	7 (35%)
16 - 20	2 (10%)
6 to 10	4 (20%)
Above 20	2 (10%)

to the researcher who asked the question to describe in details everything observed so that their study is informative and capable of being replicated [21]. We present a descriptive analysis of nursing care practices for patient management for SJS/TEN, these were condensed from transcribed texts and notes, given labels with specific codes, which were grouped together to form subthemes and themes. Some of the participant responses have been illustrated in transcribed texts excerpts.

3.2.1. Patients with SJS/TEN Are Critically Ill

Most nurses are aware that majority of patients admitted with SJS/TEN are received in critical condition and need prompt intensive supportive management especially for the first 24 hours of admission.

This theme was repeated severally among respondents and it relates to management approach given for SJS/TEN patients which follow specific nursing care procedures offered to avert serious complications for the patients.

...Use of polythene sheets with liquid paraffin and cradle to prevent more injuries to the wounds

This is a procedure in the care of patients with SJS/TEN as practiced by respondents in this study, although some respondents felt they were not adequately equipped to give quality care as far as SJS/TEN condition is concerned. This has been illustrated in the transcript excerpt below.

...“Polythene sheets used with a cradle in nursing patients, why we use polythene sheet to prevent more injury to the skin which already damaged by reaction we use the cradle also to prevent the bed and also the injury of the bed linen, the weight.”... FGD respondent2.

Respondents felt that use of polythene sheet, was protecting the skin from further erosion and injury. (Expressed in the transcript excerpt)

...“Because if patient skin sticks on linen, there is bleeding so we put cradles to ensure that they are covered and the skin is not in contact with other things and clothing.”

...“we also practice polythene nursing because you find that they don't have their skin, is out and the physiological factor of, function of skin is to conserve heat in the body, so with those polythene bag, they help them to conserve heat, to the body, and also...” FGD respondent2.

3.2.2. Skincare and Wound Management

Being aware that the skin is also the most affected in this condition and it acts as a first line barrier to infections, it came out that the nurses' concern was how to bring back the skin to healing. They were also concerned that skin exposure is also a high risk for nosocomial infections, bleeding and other serious complications for the patients. They use of saline to wash the skin routinely which is supposedly meant to prevent infections and cleanse the erosions and wounds on the mucosal surfaces accomplished by application of an emollient, liquid paraffin or petrolatum is the product used as described in the excerpts below.

...“Yes, there are specific nursing care which are provided to this patients with SJS/TEN which are not done to other skin patients. We go specifically to talk about the liner/polythene sheet nursing and liquid paraffin emollient this are special because this is special because not all patients with skin are given this care, the paraffin care is very essential and specific because it prevents bleeding, it soothes the skin” FGD respondent.

“Saline bath is also specific because it is usually done twice a day just to compare with what others do elsewhere we don't know whether we can call that is specific.” FGD respondent.

“skin patients actually we give special services as far as this ward is concerned because when we get an SJS patient or a patient with any other condition that the skin is having many wounds we must then barrier nursing and polythene liner nursing liquid and saline bath.”... FGD respondent.

The respondents felt that the routine skin care is normally very intensive and taken seriously because; it has been proven from nursing experience that it promotes healing of the skin, transcript excerpt below describes the procedure of skin care.

...“Routinely like yea, these patients has to have a saline bath that is mandatory, **why?** It improves the healing of the lesion part skin and the also to prevent infection, if a patient hasn't bathed there is a foul smell and also for the comfort of the patient.”... FGD respondent.

...“We apply antibiotic like Zupricin. I have seen us applying Zupricin mostly. **Why do you use zupricin?** It's an antibiotic and sometimes the patient has got infection in the eyes we use tetracycline eye ointment and other antibiotics like gentamycin.”... FGD respondents.

3.2.3. Two Hourly Turning of Patients

Respondents felt that patients with SJS/TEN are critical, thus are totally dependent on nursing care. As such two hourly turning is key intervention done to prevent other complications like bedsores occurring on an already eroded skin which is vulnerable as described in transcript excerpt below

...“Yea, the nursing focuses mainly I think in the management of skin complications and how it is done maybe like, especially with patients with SJS if you do them 2 hourly turning, you need to prevent pressure ulcers”... KII respondent.

3.2.4. Mouth Washes and Drug Administration

Respondent felt that SJS/TEN patients present with extensive mucosal erosions, and in severe cases excessive bleeding from the mucosal surfaces. There is considerable awareness of this presentation by the nurses, who felt that key in management is care of the mucosa by offering mouthwashes. However they do not have agreement on what products should be used. They rely on doctors' orders which are written on treatment prescriptions. Described in transcript excerpts below

...“applying mouth wash there is drug administration, in the eyes, ears, and

also applying the drug to the whole body and feeding the patient is our major role”... KII respondent.

...“Medication has to be given this patient sometimes requires mouth toilet maybe feeding you assist and also taking care of the ... mouth with ulcers”... KII respondent.

3.2.5. Monitoring of the Patient

Another key theme that came up in care of patients with SJS/TEN is careful monitoring, especially fluid status. Nursing care involves intake output monitoring in order to prevent complications that arise from excessive fluid loss as described in transcript excerpts below

...“And also if this patient requires fluids we take care of the input and output, we ensure the input and output is in order (okay) and also we have to check whether there is I mean, as far as the input and output is concerned if there is any problem we inform the doctor.”... FGD respondent.

“Hydrations is very important, since the skin is losing a lot of water you make you hydrate the patient, keep them warm and also treat infections,”... FGD respondent.

“...we practice monitoring vital signs 4 hourly especially checking the temperatures because they are prone to fever and also rehydrating them I think twill facilitate to healing of the patients”.

“there is also another specific care provision of warmth because you know most of these patients with SJS/TEN the skin is worn out which is supposed to protect them so they are nursed with, the heat is usually provided,”... FGD respondent.

3.2.6. Keeping the Patients Warm

Warmth, a key nursing issue for the patients with SJS/TEN. Patients were nursed in side rooms with heaters and provided with adequate linen to ensure warmth since most of them have extensive skin loss and damage as illustrated in transcript excerpt below

...“There are specific services like we make sure you provide them with heat which is specific management because these patients do not have skin so you provide them with heaters,” We need heaters because, you know the physiological function of the skin is to conserve heat, so these patients they don't have their skins as already exfoliated, so the heat provides the heater provides the extra heat they need in their body.”... KII respondent.

3.2.7. Feeding if the Patient Is Able to Feed or IV Fluid as Per Doctors Instructions

As part of specific care, feeding and nutritional management is one of the themes in nursing roles in the care of these patients as described in transcript excerpt below

...“If the patient is able to feed, but when the patient is very sick then we give them IV fluid or parenteral feeds as per doctor's instruction”... FGD respondent.

“And also if this patient requires fluids we take care of the input and output, we ensure the input and output is in order (okay) and also we have to check whether there is I mean, as far as the input and output is concerned if there is any problem we inform the doctor.” (FGD, respondents).

3.2.8. Infection Prevention Practices during Care of SJS Patients

Respondents felt that infection prevention is key and very crucial in the management of these patients. They also felt that nurses should be in a position to carry out their procedures aseptically to protect these patients and mentioned some of the practices they do to ensure safety of patients as far as infection prevention is concerned but it also came out that these practices are not adequately adhered to due to several challenges. See transcript excerpts below.

“Isolating patients in the acute room is important” ... key informant.

“...Patients with SJS/TEN are considered special because their needs are unique; they are sensitive and critically ill, we need to isolate them” ... KII nurse manager.

“These patients need early isolation and despite the fact that such rooms are few, they would prefer nursing the patients separately from others and sometimes the ward is full” ... Key informant.

“...Because when you are many there might be congestion and ventilation might be poor when you put a patient in side-room, ventilation is poor. That is beyond my capacity as a nurse... Key informant respondent.

Nurses wear protective masks and nylon lab coats

“Wearing of protective equipment’s to the staff like masks, gowns of which we don’t have the usual gowns like we are supposed to have those nylon ones. We have the gown which looks like a lab coat, apron of the female nurses” ... Key informant respondent

“In the real sense we are supposed to have boots we don’t have we should have so that we may not take infection there.” ... FGD respondent.

“Nurses may lack proper protective gear and hence compromise on patient safety” ... Key informant respondent.

“Most of the things are disposable, like the liner bags the solid things, most of the things we get from the patient we dispose them. There is proper disinfection of the floor.” ... FGD respondent.

“Wash your hands before you have come from the patient then you dry them and then you can use alcohol., we use gloves when we are touching one patient and discarding them so, one pair for a patient, so we don’t use one pair in two patients. It’s one pair one patient.” ... FGD respondent.

Waste management is also well practiced ... Key informant respondent

“Awareness of proper waste disposal guideline is clear and this could go a long way in general measures in infection prevention” ... Key informant respondent.

Some respondents said that they practice hand washing as a measure in infection prevention, especially before and after handling of patients. This has been enhanced by provision of hand sanitizers in the ward as described in transcript

excerpt below

“...as you walk in, you can see the bottles on the wall, that means everybody who comes here and goes out must wash your hands before you go out and we always say, especially there where we keep Steven Johnson there is a bottle on the door that when you come out from that room you wash your hands, when you are going in from that room, you wash your hands and we make sure whatever you are using on that room, is clean you are not transferring from one patient to the other the infection. So we always take hand hygiene as the first measure in infection control”... FGD respondent.

3.2.9. Limiting Visitors in the Acute Room and Barrier Nursing

Since patients with SJS are isolated, respondents felt that restriction of visitors helped in protecting these patients from infections. This was described in transcript excerpts below

“...Yea we place the patient in the side room. Then we can control the number of visitors there.”

“We put them in side rooms. We control traffic one relative for one patient. We don't allow most of the relatives to crowd the patient...” Key informant respondent

“It prevents infections because you as a nurse can take infection there in that room, we also monitor the number of visitors, we control the number of visitors and also changing the linen as first priority when visitors leave”... FGD respondent

“In order to prevent infection to the patient since the patient has lost skin this protects the body from contracting infections”. “The first one is barrier nursing, the second one is that you make sure that the decontamination, the case of the three buckets, the other one is that you make sure that the use of four buckets, the Jik, soapy water then clean water”... FGD respondent.

4. Discussion

In the management of patients with SJS/TEN, admission to a specialized burn center is the ideal [8]. However, in our setting, the patients are managed in a general dermatological ward by nurses who do not have specialized training in dermatology but are guided by experience gained from many years of clinical exposure. However, a standardized management approach is not yet clear based on current data, therefore treatment decisions were based on case by case basis [16].

The major nursing role in SJS/TEN is supportive care. The focus is on assessment and management of airway, renal function, fluid and electrolyte balance, nutrition, skin and ocular surfaces care, pain control and prevention of infection [16]. This study findings demonstrates that extensive skin and wound care management is the most challenging task since the patients are acutely ill with over 70 percent skin involvement. The study also reveals that there are no effective wound dressing methods used regularly, wounds and skin care including

oral lesions, skin erosions and peeled off areas and large areas of necrotic epidermis are adequately cleaned with saline washes. Patients with large areas of denuded skin are wrapped in large polythene sheets and wounds left open but non adhesive sterile dressings if available, may to be applied regularly [8], or should be covered by paraffin gauze [7]. There is no consensus in the care of wounds or standard protocol on wound dressing [10] [16]. However, treatment of skin lesions and epidermal loss should follow best practices to promote healing, prevent further damage of viable epidermal tissue and prevent infection [4]. Debridement of necrotic epidermis is not necessary while areas of denuded skin must be covered with compresses of saline or Burrow solution and tetanus prophylaxis is indicated [10] [22]. Although some canterers utilize surgical debridement and whirlpool therapy, others leave detached skin in place to function as a biological dressing [16]. In India, banana leaf is used in the care of SJS/TEN, it leads to pain reduction, increases comfort and leads to early wound healing [7].

This study reports that nurses do not have specific wound care techniques for patients with SJS/TEN, but most are handled case by case based on traditional wound care practices depending on the condition and extent of skin damage, tetanus prophylaxis was not mentioned as part of wound management in this study. Generally saline wash is done to maintain wound cleanliness. This is performed twice a day for patients in this unit. The nurses do not have any clinician's guidelines on care of these particular wounds or skin damage but would use topical antibiotics as prescribed. However, literature indicate that utilization of porcine xenografts, human allografts, biobrane (skin substitute made of a synthetic bilaminar membrane and Aquacel Ag, a moisture retentive hydrofibre dressing known to release within the dressing) have proven benefits on wound healing [7]. The use of biological membranes reduces wound infections and prevents scarring during the healing phase [7], they are also known to have produced benefits in mortality when compared to predicted outcomes [5]. When used, biological dressings prevents frequent dressing changes and minimizes pain and discomfort for the patient and to nurses it reduces workload of frequent baths and contaminating the affected skin areas when procedures are being practiced. In other studies, wound care consisted of use of a cleanser, topical antibiotic, topical steroids, topical antifungal, emollient, non-adherent dressing, silver impregnated and non-silver impregnated dressing and general wrap [23] [24]. Bathing patients with chlorhexidine-impregnated wipes also improved wounds, and oral lesions in some studies [25]. Sulfa containing dressings should be avoided in all cases to prevent systemic sensitization and leucopenia [10].

This study reveals that infection control is a major aspect of nursing concern for patients with SJS/TEN. The nurses have demonstrated their role in aseptic techniques and emphasized implementing these in their procedures to minimize contamination but they need to be more aware of probable sources of contamination during the nursing activities done during care. These include bathing,

change of bed linen, use of unsterile sheets and materials as a source of contamination and transmission of nosocomial infections. teamwork to guide the clinical decision for appropriate supportive care that is required, as nurses participate in giving supportive care, they also need to be vigilant especially in regards to sources of infections and emphasize on the preventive measures to protect the high risk patients. For instance, the bath basins are a reservoir for bacteria and may be a source of transmission of hospital acquired infections [26]. At initial contact with patients, nurses should be involved in conducting septic screening procedures such as collection of culture specimens of blood, urine, wound swabs, catheters, gastric tubes, and urinary tubes and repeated regularly to monitor for bacterial infections. This also applies to initiation of standard precautions, transmission based precautions and disposal of bodily secretions and excretions. Contamination can occur when caregiver handles the patient as well as from the environment [25]. For instance, during bathing, mechanical friction releases skin flora into bathwater, via inhalation, ingestion, or direct contact with excoriated skin, contaminated water in bath basins can become a source of cross-contamination of organisms from one body system to another and can be potential reservoirs for the transmission of the antibiotic-resistant organisms [26]. Contaminated supplies can potentially expose a patient's mucous membrane or non-intact skin to bacteria [26].

In our study, risk factors for mortality were seen as sepsis and renal failure, as reported by others. Sepsis is the most important cause of mortality [10], in acute phase septicemia is the leading cause of morbidity and fatality [9]. Extensive skin erosions put patients at risk of infections by bacteria and fungi [10]. In this study, resistant bacteria cultured included methicillin resistant staphylococcus aureus (MRSA), and *Acinetobacter* organisms from wound swabs done during course of care. This led to prolonged length of stay which varied from a period of 3 weeks up to 5 weeks for the patients. Complications of the eyes could result in blindness and ophthalmologist care is necessary [10] Nurses would instill artificial tears and antibiotic eye drops every two hours.

In our study, 44 patients were nursed with SJS/TEN in period of one year, 19 deaths were recorded. Of the SJS patients 24 (55%) and it is worth noting that the mortalities were partly linked to HIV infection. As demonstrated in a recent, study in Africa, HIV positive patients were the majority among those seen with cutaneous adverse drug reactions and suggested a high mortality linked to HIV infection [27].

The prognosis of the disease is determined using the score of TEN criteria (SCORTEN) [7] the SCORTEN criteria was introduced in 2000 by Bastuji-Garin *et al.* and identified seven risk factors that demonstrated expected and actual mortality rates [16]. The seven parameters include age, heart rate, presence of malignancy, body surface area involvement, raised BUN, serum bicarbonate, serum glucose levels calculated within the first 24 hours of admission [7]. The use of SCORTEN found to be inconsistent by the nursing team, the nurses lacked

knowledge on its application as well appropriate assessment skills especially for the critical patients and the scoring was left for consultant dermatologists. Assessment tools are important in delivery of quality evidence based care, for instance, a structured pathway for the management of patients with this condition is required. Clinical pathways serve as the tool for tracking a patients' progress toward achieving positive outcomes within a specified time frame.

5. Conclusions and Recommendations

In order to improve the patient outcomes in SJS/TEN in KNH, dermatology unit, we needed to assess the current nursing care practice for these patients and describe the challenges experienced by nurses. Having expressed that they were ill equipped to deal with critical events that arise out of complications for these patients, their approach to care and generally patient outcomes could be compromised. By conducting the study we therefore identified gaps in nursing care for patients with SJS/TEN, challenges and opportunities for support and improvement in overall status of patient care in dermatology unit in our referral hospital.

This study has demonstrated how nurses role is critical in management of this medical often life threatening condition. From these findings, we have a mixed feeling that as nurses carry on routine practices in the care of patients with SJS/TEN, evidence based practices are lacking. Having gained their knowledge and expertise through experience, nurses are able to deliver care but this needs to be enhanced by clinical research for quality improvement. When patients with these life threatening conditions are under nurse's care, they should feel confident with appropriate guidance from the clinical team coupled with proper training, orientation and clinical guidelines to support care for better outcomes for patients.

Overall the goal of researcher in conducting this study was to explore the nursing interventions for management of SJS/TEN in the dermatology unit, KNH. The researcher recommends that nursing practice for SJS/TEN could be identified as a priority for specialist training opportunities and skills development. In low middle income country, the patients can get optimum care if nurses are empowered and their roles enhanced in disease management and decision making in utilization of health resources as these critical factors that affect clinical outcomes for patients. Unless these factors are understood and improved by providers and stakeholders, the care delivered may be ineffective and patient outcomes maybe negatively affected.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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