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Original Article

Skin diseases among peacekeepers at United Nations and African Mission in Darfur

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Abstract

Objective To determine the frequency and pattern of cutaneous diseases among peacekeepers at a tertiary care hospital in United Nations and African Mission in Darfur, Sudan.

Methods This descriptive study was conducted at dermatology outpatient department of United Nations peacekeeping mission (UNAMID) level III Hospital at Darfur, Sudan from March 2014 to Feb 2015. Peacekeepers of both gender reporting to dermatology OPD were registered after informed consent. Patients' demographic profile, nature of duty, disease diagnosis and duration of illness were noted. The data was managed and analyzed using SPSS-17.

Results A total of 542 peacekeepers of the age ranging from 20-60 years were analyzed. Eczema was the most common disease (38.7%), followed by fungal infections (22.5%) and acne (10.7%). 47.6% of patients had the disease before deployment in mission area and 52.4% developed after reaching in mission area.

Conclusion Eczema, dermatophytosis and acne were the commonest skin problems among peacekeeper. Almost half of these had dermatological problems before deployment.

Keywords
Skin disease, dermatological problem, United Nations, peacekeepers**.**

Introduction

United Nations and African Mission in Darfur (UNAMID) was established on 31st July 2007 , with the adoption of Security Council resolution 1769.[1] UNAMID, currently the largest peacekeeping mission in the world, was established against the backdrop of civil war which erupted in Darfur in 2003. The mission consists of almost 15000 troops from different countries and ethnic origin, around 1000 international civilian personnel, 3000 local civilian staff and around 313 United Nations Volunteers.[2] These multinational peacekeepers have their deployment locations throughout the three states of Darfur. These personnel are dependent on one Level III hospital (tertiary care), three Level II hospitals (secondary care) and multiple Level I (primary care) hospitals located throughout the mission area. Dermatology services are only available at Level III hospital established at Nyala, a main city of South Darfur.

Sudan in general is known for its hot and dry climate with few months of the year having very low humidity levels. The relative humidity in Sudan, according to various weather sites goes as low as 15% to 20% during February to May. Cutaneous diseases are common health problems

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in these deployed forces, probably because of dry environmental conditions and various other physical factors which can start a new disease or aggravate an already existing skin condition.

The aim of conducting this study was to describe the frequency and pattern of skin diseases among patients reporting at United Nations Level III hospital. Results from this study will therefore assist in future planning of good dermatological health care facilities to the patients reporting at this hospital and other UN hospitals.

Methods

The study was carried out at dermatology outpatient department of United Nations peace keeping mission (UNAMID) level III Hospital at Darfur, Sudan from March 2014 to Feb 2015, after approval from the ethics committee of the hospital. All patients from both genders suffering from any skin disorder and reporting for the first time to dermatology department were registered after informed consent. A specially designed proforma was filled for each patient separately. We recorded demographic profile and disease information of all patients. Demographic profile included age, gender, race, type of deployment and country of origin. Disease information included diagnosis and onset of the disease whether before or after deployment in the mission area and source of referral. The data was managed and analyzed using SPSS-17. Descriptive statistics (mean, percentages and frequency distribution) were used to evaluate the results.

Results

A total of 542 peacekeepers reported to dermatology outpatient department of the hospital for different cutaneous problems during the study period. Most of the patients were male (88.6%) Age of the patients ranged from 20-60 years with a mean of 30.45 ± 5.43 years. Most of the patients (77.3%) were from African countries. The highest number of patients were seen in the month of July and August while lowest numbers of patients reported in January and February. 258 (47.6%) patients had the disease before deployment in the mission area while 284 (52.4%) patients developed disease soon after reaching the team sites. Demographic features are shown in **Table 1**.

Table 1 Demographic profile of peacekeepers at UN hospital, Darfur (n=542).

Variable	*n (%)*
Gender	
Male	480 (88.6)
Females	62 (11.4)
Age	
20-40 years	419 (77.3)
40-60 years	123 (22.7)
Race	
African	412 (76)
Caucasian	118 (21.7)
Mongoloid	12 (2.3)
Nature of duty	
Office workers	280 (51.7)
Outdoor security personnel	212 (39.1)
Technicians	50 (9.2)
Duration of illness	
Before deployment	258 (47.6)
After deployment	284 (52.4)

Table 2 Frequency of skin diseases at UN hospital, Darfur (n=542).

Disease	*n (%)*
Eczema (palmoplantar, seborrheic, nummular, contact and other types)	210 (38.7)
Fungal infections (all types)	122 (22.5)
Acne vulgaris (facial, truncal)	58 (10.7)
Melasma	34 (6.2)
Urticaria (both acute and chronic)	29 (5.3)
Alopecia areata	22 (4)
Herpes infections (herpes simples and herpes zoster)	19 (3.5)
Skin tags	18 (3.3)
Dermatosis papulosa nigra	14 (2.5)
Genital warts	9 (1.6)
Other miscellaneous diseases including (leprosy)	7 (1.2)

Eczema of all types was the most common disease in 210 (38.7%) patients, followed by dermatophyte infections of all body regions in 122 (22.5%) and then acne vulgaris of both face and trunk 58 (10.7%). Most common type of eczema was of follicular type followed by contact and nummular type. Most of the fungal infections were seen in the feet i.e. tinea pedis interdigitalis followed by pityriasis versicolor of upper trunk. Other common conditions are described in **Table 2**.

Discussion

Skin is the largest organ of the body, but the importance of cutaneous health in soldiers is often neglected.[1] During World War I, almost 48,000 American soldiers were admitted to hospitals for different kinds of dermatoses, and 12.6% of hospital admissions for British soldiers in France were for cutaneous diseases.[2,3] During World War II, up to 45% of American referral in the European hospitals were for dermatologic diseases. During the winter of 1943, 7.2% of hospital admissions in the European care giving facilities were for dermatologic diseases.[4] Same held true in Vietnam, 12.2% of referral was for skin diseases, almost twice the amount of any other category of illnesses and 9.7% of medical evacuations for disease, were for cutaneous conditions.[5]

Eczema was the most common skin condition (38.7%) in our study. The discomfort from eczematous conditions can increase during a military deployment, with psychological stress.[6] The dry and hot climate can be another exacerbating factor as evidenced by the high rates of xerotic and dyshidrotic eczema in the Gulf War.[7-10] Soldiers are exposed to a wide variety of irritants and allergens that can cause allergic or irritant contact dermatoses. Hydrocarbons, grease, solvents, petroleum products, and wet working conditions are common causes of irritant eczema in soldiers. Allergic contact dermatitis due to military uniforms (Khakis) or camouflage creams, was responsible for 1% of dermatologic consultations in a study of military personnel in Singapore.[11-14] Soldiers with a previous diagnosis of atopic dermatitis often face difficulty when deployed because of their increased propensity for flares, especially of the hands and feet.[15,16] Various group of conditions, including atopic, nummular, dyshidrotic, allergic, and irritant contact dermatitis, deserves special care among military personnel in dry climates as there is an increased in transepidermal water loss.

Dermatophytosis were the second most common cutaneous disease (22.5%) afflicting the peacekeepers in our study. Tinea pedis was the most common variant seen among these patients followed by tinea cruris. Most of these patients had this condition before their deployment in the mission area and were already taken some form antifungal treatment with variable efficacy. It seems like that the dry and hot environment of this area had exacerbated this condition. Superficial fungal infections carry low morbidity and negligible mortality.[6] Habits of soldiers i.e. putting on the shoes when they are wet and even when they are off duty, bolsters the existing worse condition of feet. Physical trauma to the exposed areas of body in operational areas predisposes soldiers to this ubiquitous infection. There is a dire need to address this condition well in time, as it is hard to eradicate tinea pedis once the disease sets in, especially in wars. Education of the soldiers about the care of feet is a must, as fungal infections can incapacitate the physical performance of peacekeepers.

Acne makes up to 15% of the average civilian dermatologists caseload, but accounted for only 9.0% of military cases, despite the abundance of young men and women in the military.[27-29] Acne vulgaris was the third most common skin

condition in peacekeepers (10%) and almost all of these patients had the condition before deployment in the mission area. Lady soldiers and officers made a large proportion of the acne referral. They reported an exacerbation in their acne after deployment, which can be easily explained by the stressful conditions of operational area along with excessive exposure to sunlight due to patrolling in field areas. Several studies describe soldiers' perception that acne is generally of trivial importance during wartime.[17,18] As a result, more cases are likely to be handled by level I clinics or simply neglected by the soldier.[19]

As 71% of the peacekeepers were from African countries, so skin conditions prevalent in these regions were also witnessed during study duration. Important to mention here are dermatosis papulosa nigra, multiple genital warts due to unprotected sexual intercourse among homo- and heterosexual soldiers and few cases of leprosy who were eventually sent back to their native countries due to non-availability of antileprosy therapy.

Almost half of the peacekeepers (47.6%) had skin disease before deployment in the mission areas. This indicates inadequate pre-deployment selection and screening from the country of their origin. These skin conditions, although do not preclude them for deployment in mission,[20] but persistence or exacerbation of these conditions can affect the efficiency of peacekeepers. Stress is an important factor in these operational areas along with high temperature and dryness, which can exacerbate already existing skin conditions.

Conclusion

Eczema, fungal infections and acne vulgaris are the most common skin diseases among peacekeepers. Almost half of them (47.6%) had their skin diseases before deployment in mission areas. Screening for skin diseases should be taken seriously before selecting the soldiers for operational areas, as hot, dry and stressful environmental conditions can exacerbate their existing skin disease and can adversely affect their performance in mission area.

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