



Short Communication

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Evaluation of The Pressure Ulcers after Using Barrier Cream in Intensive Care Unit

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To Cite This Article: Banu Otlar Can. Evaluation of The Pressure Ulcers after Using Barrier Cream in Intensive Care Unit. 2020 - 9(3). AJBSR. MS.ID.001381. DOI: 10.34297/AJBSR.2020.09.001381.

Received: ☞ May 28, 2020; Published: ☞ June 23, 2020

Introduction

A pressure ulcer (PU) is specified by National Pressure Ulcer Advisory Panel (NPUAP) as localized cutaneous or subcutaneous tissue damage that occurs on bone protrusions whether alone or in combination with shear stress [1].

Clinicians often use a four-grade system as defined by NPUAP for consistency in diagnosing and treatment; Grade 1 non-blanchable erythema with intact skin, Grade 2 partial skin loss of the dermis, Grade 3 full thickness skin loss with exposed dermis and Grade 4 deep tissue loss and injury exposure of bone, tendon and muscle [1].

Pressure ulcers are caused by multiple factors such as immobilization, malnutrition, advanced age, urine and/or faeces contamination, overhydration and friction [2]. In intensive care units (ICUs) because of mechanical ventilation, limited immobilization, widespread use of anesthetic, sedative and muscle relaxant drugs and circulatory ventilation disorders related to vasoactive drugs causes higher rate of pressure ulcers.

The prevalence of PU in adult ICU was 16.9-23.8% higher than the prevalence of 12-18% for all hospitalized patients [3]. The prevalence of pressure ulcers in Europe is 7.9-22.9% in hospitals [4]. Although many negative factors effect mortality in ICU, Kelle et al.'s study showed that the mortality rate was 15% without pressure ulcer and 63% with pressure ulcer [5].

As pressure ulcers are painful, they discomfort the patient and increase the complications, stay of the hospital and cost of the treatment [6]. Therefore, most important step in the treatment of pressure ulcers is to prevent the formation. For this purpose, various barrier creams are used to keep the skin intact and nourished [7]. Our aim is to share our pressure ulcer data in ICU after using a barrier cream (Cavillon Durable Barrier Cream, 3M Health Care).

Material and Method

Bursa Inegol State Hospital's ICU is a 36- bed unit with over 1200 admissions per year. Patients were observed by Norton Scale acceptance to ICU and daily about pressure ulcer area and graded by physicians and nurses. Pressure ulcers were classified according to the four grades of NPUAP. The barrier cream applied all over the body as a skin protector twice a day.

Findings

We observed that after using barrier cream three months ratio of PU was decreased from 6.6% to 4.5% (Table 1). Seventy five percent of the 17 PU were first grade and 25% were second. 90% of PU at sacral region. Eight patients were 10 risk score, 6 were 8 and 3 were 6 risk scores. Mean duration of stay in ICU was 13 days of patients with ICU. The ratio of PU did not exceed 6% during a year.

	Number of patients	Number of patients with PU	The ratio of the PU
Three months before topical agent	330	22	6.60%
Three months after topical agent	370	17	4.50%

Discussion

Management of skin damage is hard because skin is the body's largest organ with a surface of around 2 m². Skin barriers also called moisture barriers help to form a barrier between stratum corneum and any exposures [7]. They are form of creams, pastes lotions and films. 3M Cavillon Durable Barrier Cream consist of dimethicone for skin protection ; acrylate terpolymer for durability and tape adhesion; coconut oil, mineral oil and paraffin for skin moisturizing; dicapryl adipate, isopropyl palmitate and PPG-15 stearyl ether for

skin conditioning for skin conditioning and replenishing [8]. Campbell et al. reported skin's appearance improvement after using barrier cream between 88% and 100% of affected patients [9].

Zena EH Moore et al. five trials (940 participants) of unclear or high risk bias compared a topical agent with placebo. They reported no overall beneficial effect of the topical agents but the cluster randomised trial from the analysis indicated use of topical agents reduced the pressure ulcer incidence by 36% [10].

Kerr et al. In a prospective cohort descriptive study of 10 patients over 14 days measured low echogenic pixel (LEP) imaging of affected skin and compared with the LEP of normal skin adjacent to the affected area using high-frequency ultrasound. After using barrier cream the mean LEP measures dropped. These suggests durable barrier cream effective for the treatment of incontinence associated dermatitis [11].

It is not possible to conclude with our results because of the small number of patients, the short duration time and effect of other multifactors in intensive care unit. However, barrier creams are easy to apply and cheap they can support the consideration of alternative treatment.

Conclusion

Evaluation of barrier creams or topical agents on the prevention of pressure ulcers needs well-designed studies. Prevention of pressure ulcers is important both in terms of public health and country economy.

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