

EFFECT OF SAFETY SKIN PROTOCOL ON PRESSURE ULCER OCCURRENCE AMONG IMMOBILIZED PATIENTS

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ABSTRACT

Background: Immobilized patients are vulnerable to pressure ulcer development due to severity of illness, increased length of stay, poor tissue perfusion due to hemodynamic instability, immobility, and poor nutritional status. Pressure sores are areas of localized damage to the skin and underlying tissue friction. This type of damage can also be known as pressure ulcers, bedsores, or decubitus ulcers. **Aim:** Evaluate the effect of safety Skin protocol on pressure ulcer occurrence among immobilized patients. **Subjects and method: Design:** A quasi-experimental research design was utilized. **Subjects:** convenience sample of 70 adult patient, assigned into two groups (study and control) each group consisted of 35 patients. **Setting:** The study was conducted in the Mansoura University Hospital at Neurological departments and Neurological ICU. **Tools:** Two tools were utilized tool one pressure ulcer status, tool 2 skin safety observational checklist, and it was done at the time of admission until six days. **Results:** data revealed that 70% of patients maintained their skin integrity all over the study period, 30% develop the first stage of the ulcer. The effect of safety skin protocol was significant statistically. **Conclusion:** Immobility, increase pressure, Immobilized patients more susceptible to pressure ulcers. **Recommendations:** It is important to enhance the awareness level among the public, patients, and also the health care providers regarding the importance of applying safety skin protocol for immobilized patients from admission regular educational programs to continuously update the nurse's knowledge with the advanced and effective practice of skin care and early detection of pressure ulcers.

Keywords: Immobilized patients, Pressure Ulcer, Safety Skin Protocol.

INTRODUCTION

Immobility is attributed to several complications, including pressure ulcers. (Mendez, Serrano & Castano, 217). Many studies have shown that immobility complications can have a variety of negative effects, including increased morbidity and mortality, as well as a longer period of stay (Xinjuan, 2018).

Pressure ulcers may be caused by a lack of blood flow as a result of reperfusion injury, which occurs when blood re-enters tissue. Healthy individuals can experience a basic example of a mild pressure sore when sitting in the same place for long periods: the dull ache is indicative of obstructed blood flow to the affected areas. This blood supply shortage, known as ischemia that occurred within hours (Black, 2019).

Regardless of another physiological cause, pressure ulcers develop as a result of pressure, with or without the addition of shearing forces. An individual who is not under any pressure is unlikely to develop a pressure ulcer. According to the literature, two factors play a role in the development of ulcers caused by pressure: pressure strength (the amount of external pressure exerted on internal tissues) and length (the amount of time external pressure is sustained by internal tissues). The level of pressure refers to a pressure greater than the capillary pressure, which causes the flow in capillaries and lymph nodes to slow down, resulting in inadequate oxygen and nutrient delivery and metabolic waste evacuation. The pressure exerted on the skin and subcutaneous tissues is several times greater than the pressure exerted by capillaries (Sree, Rausch&Tepole, 2019)

There are many risk factors associated with the development of pressure ulcers. Many studies pointed that immobility, sensory perception, decrease level of consciousness, nutrition, activity, obesity, age-related skin changes, and increased co-morbidity factors. , gender, length of stay, infection, Drug therapy as Sedatives due to Reduced awareness of pressure and pain, Neurological motor impairment as stroke due to a reduction in sensory perception and mobility, and muscle-skeletal impairment were associated with pressure ulcers (Smit, Harrison, letzkus & Quatrare, 2016).

In the USA, pressure sores incidence amongst hospital patients varies from low as 8% to as high as 40% (Bethell, 2018). Immobilized patients have an increased risk of pressure ulcers, as evidenced by a 33% incidence and 41% prevalence (Salcido, 2017). Taylor, Mulligan & McGraw, 2021 they found that Pressure ulcer prevention

should be a priority in caring for patients and shouldn't be limited to patients with restricted mobility. A key approach to prevent pressure ulcers lies in the prediction of their occurrence in high-risk patients admitted to the Neurological departments and Neurological ICU.

The key to preventing a pressure ulcer is maintaining the skin healthy. There are many ways to keep the skin healthy and prevent pressure ulcers. A Health care protocol is a step-by-step description of a process that is routinely used in the care of individual patients to ensure that the desired outcome is consistently achieved. This protocol outlines the measures taken by the healthcare team to assess patient risk and protect skin from developing pressure ulcers.

AIM OF STUDY:

Evaluate the effect of safety Skin protocol on pressure ulcer occurrence among immobilized patients.

Hypothesis

The implementation of a safety skin protocol will decrease the occurrence of pressure ulcers among immobilized patients.

SUBJECTS AND METHOD:

Research design:

A quasi-experimental design was used to accomplish this study.

Setting:

The study was carried out in the Neurological departments and Neurological ICU at Mansoura University Hospital. These units provide services for patients with neurological problems transferred from hospital wards. Each unit consists of seven beds separated by curtains.

Sample size calculation:

Sample of **70** adult patients of both sexes fulfilling inclusion criteria was calculated Epi inf. Program version 6.2 after taking into consideration the total number of registered patients admitted to and neurological department and Neurological ICU

in MUH during 6 month in 2019 (360) patients and the clinical incidence of pressure ulcer among ICU patients 30%-40% Study power of 80% confidence interval 90% & relative precision of 15%.

Exclusion criteria: Patients with bed sores because these can negatively affect the results of the study.

Subjects:

A convenient sample of seventy adult patients of both sexes was admitted to the above-mentioned settings. The sample was assigned in two groups (control and study) thirty five in each

Tools of data collection:

Two tools were used in this study

Tool I: "The Pressure Ulcer Risk Assessment Scale (Barden scale) this scale was adopted from (Barbara J, 2005) to assess the risk of skin breakdown, this tool consisted of two parts:

Part 1: "Demographics and clinical data" which included age, sex, marital status, occupation, date of admission, past Neurological history, present Neurological history, and level of consciousness from the patient record.

Body weight due to lack of availability of a scale to measure the body weight in critically ill patients (who are confined to bed), the weight was calculated by using the equations for estimating the body weight from the knee height (KH), the mid arm circumference (MAC) and the age for various groups was estimated from the knee height and the mid arm circumference

Technique of knee height measurement:

1. the knee height was measured using a sliding caliper, the knee, and ankles were positioned 90 angles, this angle was verified by a right triangle.
2. The fixed blade of the caliper was placed under the heel of the left foot, and the movable blade was placed on the anterior surface of the left thigh.
3. The caliper shaft was positioned parallel to the fibula, over the lateral malleolus. Pressure was applied to the two blades to compress the soft tissues

Technique of Mid Arm circumference (MAC) measurement:

1. MAC is measured while the patient is in supine position from the right or left arm by using no stretchable tape. With the upper arm approximately parallel to the body, the forearm was placed palm down across the middle of the body with elbow bent 90.

2-The midpoint of the upper arm was located between the tip of the acromion process and the olecranon process and marked.

3. A non-stretchable tape measure was placed around the upper arm at the level of the marked midpoint and perpendicular to the long axis of the arm.

Part 2: The Pressure Ulcer Risk Assessment Tool

This tool was developed by the researcher after reviewing the related literature. (Niezgoda , 2006).

The researcher used the Braden Scale to measure the risk of skin breakdown since it is most widely used, and its validity has been verified. Sensory perception, moisture, activity, mobility, nutrition, friction, and shear were all evaluated for each patient. This scale was adopted from (Barbara J, 2005; ICSI, 2007). The Braden Risk Assessment Scale consists of six subscales that evaluate sensory perception, activity level, mobility, and nutrition status, skin moisture, friction and shear forces. (Mild risk 15-18, Moderate risk 13-14, High risk 10-12, Very High risk 9 or below). The Braden Scale was used by the researcher to measure the risk of skin breakdown, since it is most widely used and its validity has been verified.

Pressure Ulcer Risk Assessment Scale (Braden scale) using part (II).

The researcher was assessed the patient according to specified criteria and determines the appropriate numeric score. On five subscales (sensory perception, mobility, activity, moisture, and nutrition), patients can receive scores from 1 to 4, with 4 representing the highest. On the remaining subscale (friction and shear) patients are ranked from 1 to 3. Adding the six subscale scores yields a total Braden Scale score, which can range from 6 to 23. Lower total scores are associated with a higher risk of developing pressure ulcers The range of possible scores is (Mild

risk 15-18, Moderate risk 13-14, High risk 10-12, Very High risk 9 or below)

Category1- Sensory Perception: "The ability to respond to pressure related discomfort" was evaluated on a scale of 1 -4.

Score 1 " Completely limited" The unresponsive patient who doesn't grasp to painful stimuli as a result of diminished level of consciousness or sedation or limited ability pain over most of the body surface.

Score 2 "Very limited" The patient who responds only to painful stimuli or has sensory impairment as limits the ability to fell pain or discomfort over one half of the body.

Score 3 "Slightly limited" The patient who responds to verbal command but cannot always communicate discomfort or need to be turned or has some sensory impairment.

Score 4 "No impairment ": The patient who responds to verbal command & has no sensory deficit which would limit the ability to feel or voice pain or discomfort.

Category 2- Moisture: "The degree to which the skin is exposed to moisture" was evaluated on a scale 1- 4.

Score 1 " Constantly moist "The skin is kept moist almost constantly by perspiration, urine& drainage.

Score 2" Very moist" The skin is often but not always moist linen must be changed at least every 8 hours.

Score 3" Occasionally moist": The skin is occasionally moist, requiring linen change every 12 hours.

Score 4" Rarely moist" The skin is usually dry, only requires linen change every 24 hours.

Category 3- Activity: "The degree of current physical activity" was evaluated on a scale 1- 4.

Score 1" Bed fast" The patient who is confined the bed.

Score 2 "Chair fast" The patient who has the ability to walk severely limited and can't be bearing his own weight or must be assisted into chair or wheel chair.

Score 3 "Walks occasionally": The patient who walks occasionally during the

day but for very short distances, with or without assistance.
Score 4 "No limitation": The patient who walks outside the room at least once every 2 hours.

Category 4-Mobility: "The ability to change and control body position" was evaluated on a scale 1- 4.

Score 1 "Completely immobile": The patient who doesn't make even slight change in body or extremity position without assistant.

Score 2 "Very limited mobility": The patient who makes occasional slight change in body or extremity position but unable to completely turn self independently.

Score 3 "Slightly limited mobility": The patient who makes frequent slight changes in body or extremity position independently.

Score 4 "No limitation": The patient who makes frequent changes in position without assistance.

Category 5 - Friction and Shear: "Friction occurs when the skin moves against support surfaces", "Shear occurs when the skin & adjacent bony surfaces slid across one another" was evaluated on a scale 1- 3.

Score 1 "Problem": requires moderate to maximum assistance in moving. Complete lifting without slides down in bed or chair, requiring frequent repositioning with maximum assistance.

Score 2 "Potential Problem" requires minimum assistance in moving, skin probably slides to some extent against sheets, chair, restraints or other device.

Score 3 "No apparent problem" The patient who is completely able to lift

During a position change, moves in bed & chair independently.

Category 6- Nutrition: "The usual food intake pattern" was evaluated on a scale 1- 4.

Score 1 "Very poor": The patient who is given nothing per mouth or maintained on clear liquids or I V fluid for more than 5 days or take oral fluid poorly

Score 2 "Inadequate": On liquid diet or tube feeding /TPN, this provides adequate calories and minerals for age.

Score 3 "Adequate": tube feeding /TPN, this provides adequate calories and minerals for age.

Score 4 " Excellent": normal diet, providing adequate calories for age & eats well each meal.

Scoring system:

Risk assessment tool

(Mild risk 15-18, Moderate risk 13-14, High risk 10-12, Very High risk 9 or below).

Pressure Ulcer Risk Assessment Scale (Braden scale)

(Mild risk 15-18, Moderate risk 13-14, High risk 10-12, Very High risk 9 or below)

Tool II: Safety Skin Observational Checklist

It was developed by the researcher to assess patients' skin conditions through **skin inspection** to assess patients' skin condition such as skin moisture (normal, dry or moist), change in temperature compared to surrounding skin (warmer or cooler), color changes such as (normal (pink), pale, cyanosis or red), and consistency such as (soft or hard) & severity of the skin breakdown (staging scale) the scale ranges from stage I to stage IV.

The checklist used to assess nursing practices for immobilized patients, it consists of minimizes pressure to reduce pressure on bony prominences, minimize or eliminate friction& shear, manage moisture, maintain adequate nutrition, promoting mobility& maintain tissue perfusion, and oxygenation.

Validity of the tool:

The researcher used the Braden Scale to measure the risk of skin breakdown since it is most widely used, and its validity has been verified. The tools used in this study were developed by the researcher after a thorough review of the related literature and tested for content related validity by 5 experts in the field (professors in medical and surgical nursing) for revision of its content validity.

Reliability of the tools

It was done using test retest method. Reliability coefficient for tool one was ranged from 0.65 to 1.0 for tool two was ranged from 0.75 to 0.1

A pilot study was carried out on 10% (7) patients before starting the data

collection to test the feasibility and applicability of the tools and necessary modification were done.

Ethical consideration:

A written approval was obtained from the hospital administrative authority to collect the necessary data. The tools used in this study were developed by the researcher after a thorough review of the related literature and tested for content-related validity by 5 experts in the field. Consent was obtained from patients after an explanation of the purpose of the study and their families in ICU. A pilot study was carried out on 7 patients before starting the data collection to test the feasibility and applicability of the tools and necessary modifications were done. All patients admitted to the above-mentioned settings and free from pressure ulcers meeting the inclusion criteria for this study were enrolled in the study.

Field work:

Demographic & clinical data such as age, sex, and date of admission, past neurological history, present neurological history, and level of consciousness were obtained from the patient's record using (part1) of tool(1).

Assessment phase

- An initial assessment was carried out by the researcher on all immobilized patients (group 1 and group 2) on their admission day to Neurological departments and Neurological ICU using tool one (part II) of tool (1) to assess pressure ulcer risk, then reassessment was done daily to six-day from admission. The assessment was conducted in the morning and took approximately 15 minutes.
1. **The Pressure Ulcer Risk Assessment Scale** was measured using Braden Scale. Patients were provided with an explanation about the assessment of skin condition and privacy was maintained. Each patient was assessed and given a score for each of the six categories, (sensory perception, mobility, activity, moisture, nutrition, friction, and shear).
 2. **Skin inspection** skin condition was assessed and recorded daily starting from within six hours of admission until six days by using tool two, site of pressure ulcer was described through body diagram, all suspected for pressure ulcer was exposed to identify ulcer. **Skin color** was assessed visually and evaluate

as normal (pink), pale, cyanosis or red. **Skin moisture** was assessed and evaluated as normal, dry, or moist. **Skin temperature** was assessed using the back of the hand and fingers to feel the temperature of the skin and evaluate as normal, cool or warm and the severity of any skin breakdown.

Intervention phase

- The **safety skin plan** was done from admission to six days by the researcher for the study group, this includes minimize pressure, minimize friction and shear, maintain adequate nutrition, and manage moisture.

Evaluation phase

- After implementation, evaluate the safety skin protocol among immobilized patients, then a comparison was done between the two groups (Group 1 and Group 2) to determine the effect of the protocol on the occurrence of a pressure ulcer for immobilized patients.

Statistical design

The statistical package for social studies (SPSS) version 19 was used after the collected data was organized, tabulated, and statistically analyzed. The number and percentage distribution of variables were calculated. The relationship between variables was tested using the chi-square test. In presence of small observations with expected values less than five, the chi-square test was considered inappropriate for statistical analysis, and Monte Carlo or Fisher exact test was used. The level of significant ($p < 0.05$).

RESULTS:

Table (1): shows a Comparison between the control group and study group about socio-demographic characteristics. It can be noticed that 62.9% of the control group were males and 37.1% females for the control group compared to 71.4% and 28.6% for the studied group. As regards immobilized patient's age, 37.1% were between 20 and 39 years, 48.6% between 40 and 59 years, and 14.3 % were between 60 and 80 years for the control group compared to 14.3%, 60%, and 25.7% for the studied group.

Regarding immobilized patients' weight, 34.3% were between 45kg - or more 45.7% were between 65kg- or more and 20% were between 80-110 kg for the control group compared to 17.1%, 48.6%, and 34.3% for the studied group. Furthermore, the patient's height, 25.7% were between 150 cm- or more, 62.9% were between 160cm – or more and 11.4 % were between 170-180 cm for the control group compared to 5.7%, 71.4%, and 22.9% for the studied group.

Table (2): It can be noticed that 48.6% hypertension, 17.1% diabetes, 11.4% heart disease, and 5.7% pulmonary and seizures for the control group compared to 51.4%, 20%, 14.3%, and 8.6% pulmonary disease for the studied group. As regards present diagnosis 48.6% neurological disease, 22.9% post-operative, 11.4% cardiac disease, 5.7% pulmonary, renal disease and trauma for the control group compared to 45.7%, 25.7%, 8.6%, 5.7 and 14.3% trauma for the studied group.

Table (3): This table revealed that saturated arterial oxygen tension on admission 82.9% were normal, 17.1% were abnormal, and at the end of six days 71.5% were normal and 28.5% were abnormal for the control group compared to 80% normal, 20% abnormal on admission and at the end of six days 88.6% normal and 11.4% abnormal for the studied group. Regarding capillary refill assessment for immobilized patients 80% were normal, 20% were abnormal on admission, and at the end of six days, 68.6 % were normal, 31.4% were abnormal for the control group compared to 71.5%(normal), 28.5%(abnormal) on admission and 85.7%(normal), 14.3 % (abnormal) for the studied group at the end of six days.

It can be noticed from **Figure 1** that 28.6% had the first degree and 71.4% not developed pressure ulcer for the control group compared to 100% not developed pressure ulcer for the studied group at the end of three days. At the end of six days, 57.1% had a first degree, 17.1 % had a second degree, and 25.7 % no ulcer for the control compared to 31.4% first degree and 68.6% no ulcer for the studied group. As regards all immobilized patients who had intact skin on admission, at the end of three days 71.4% had intact skin, 17.1% were in the sacrum, 5.7% were in the scapula, 2.9% were in the elbow and the heel for the control group compared to 100% had intact skin for the studied group. At the end of six days, 25.7% had intact skin, 31.5% were in the scapula, 28.6% were in the sacrum, 5.7% were in the back of the head and heel and 2.9% were in the elbow for the control group compared to 68.6% had intact

skin, 11.4% were in the scapula, 14.3% were in the sacrum, 2.9% nose and back of the head for the studied group.

Figure (2): revealed that minimize friction & shear for immobilized patients 57.1% were performed for the control group at the end of six days compared to 100 percentage performed for the study group. Regarding minimize pressure, 48.6% were performed for the control group at the end of six days compared to 100% performed for the study group. As regard managed moisture, 82.9% were performed for the control group on admission compared to 100% performed for the study group at the end of six days. Nurse's performance of safety skin observational checklist, 28.5% maintained tissue perfusion for the control group at the end of six days compared to 100% performed to the study group. Regarding mobility, 31.4% were performed for the control group at the end of six days compared to 100% performed for the study group.

Table (1): Comparison between the control group and study group about socio-demographic characteristics.

Socio-demographic characteristics	Control group (n=35)		Study group (n=35)		X ²	P
	No	%	No	%		
Age in years:					1.148	0.563
20<	13	37.1	5	14.3		
40 <	17	48.6	21	60.0		
60<	5	14.3	9	25.7		
Gender:					0.583	0.445
Males	22	62.9	25	71.4		
Females	13	37.1	10	28.6		
Weight in Kg:					2.340	0.310
45-	12	34.3	6	17.1		
65-	16	45.7	17	48.6		
85-110	7	20.0	12	34.3		
Height in cm:					1.148	0.671
150-	9	25.7	2	5.7		
160-	22	62.9	25	71.4		
170-180	4	11.4	8	22.9		

Table (2): Comparison between the control group and study group about health-relevant data.

Health relevant data	Control group (n=35)		Study group (n=35)	
	No	%	No	%
Past Neurological history:				
None	3	8.6	2	5.7
Cardiac diseases	4	11.4	5	14.3
Pulmonary diseases	2	5.7	3	8.6
Diabetes	6	17.1	7	20.0
Hypertension	17	48.6	18	51.4
Seizures	2	5.7	0	0.0
Present diagnosis:				
Cardiac diseases	4	11.4	3	8.6
Pulmonary diseases	2	5.7	2	5.7
Neurological diseases	17	48.6	16	45.7
Renal diseases	2	5.7	0	0.0
Post-operative	8	22.9	9	25.7
Trauma	2	5.7	5	14.3
Glasgow coma score				
On admission :				
Conscious	1	2.9	0	0.0
Semiconscious	14	40.0	11	31.4
Unconscious	20	57.1	22	62.8
At day 3				
Conscious	0	0.0	2	5.7
Semiconscious	10	28.5	10	28.5
Unconscious	25	71.5	23	65.8
At day 6				
Conscious	0	0.0	2	5.7
Semiconscious	10	28.5	11	31.4
Unconscious	25	71.5	22	62.8

Table (3): Comparison between the control group and study group about Oxygenation at different periods follow up.

Oxygenation.	Control group (n=35)		Study group (n=35)		X^2	P
	No	%	No	%		
Sao2						
On admission :					0.467	0.495
Normal	29	82.9	28	80.0		
Abnormal	6	17.1	7	20.0		
At day 3					14.93	0.001*
Normal	25	71.5	31	88.6		
Abnormal	10	28.5	4	11.4		
Z	2.449		3.124			
P	0.014*		0.015*			
At day 6					14.93	0.001*
Normal	25	71.5	31	88.6		
Abnormal	10	28.5	4	11.4		
Z	0.000		0.000			
P	1.000		1.000			

Significant ($p < 0.05$).

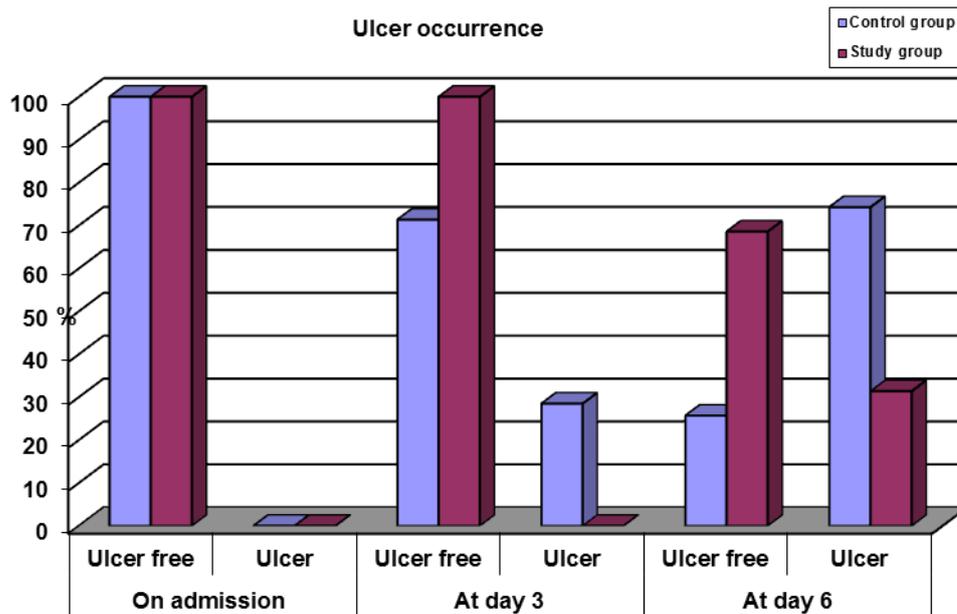


Figure 1: Distribution of studied patients according to pressure ulcer occurrence

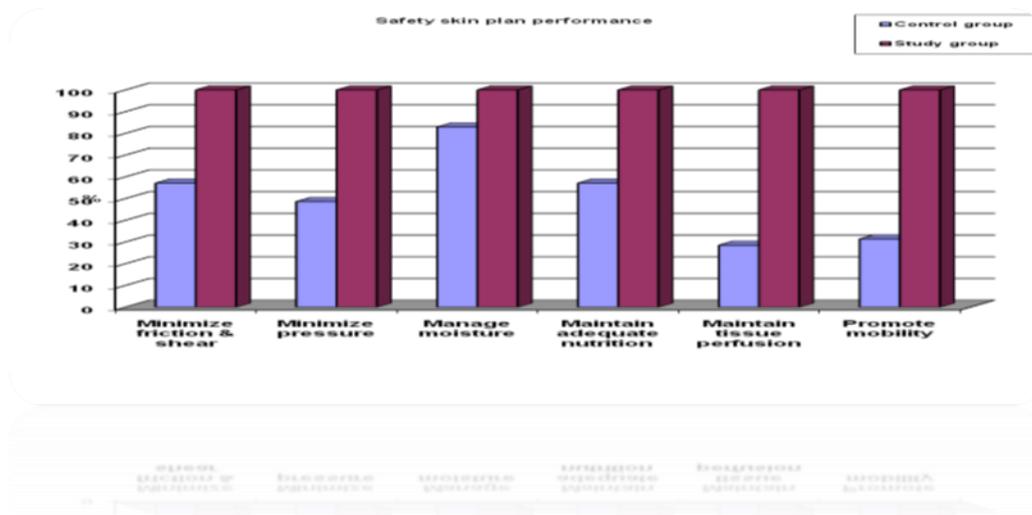


Figure 2: Distribution of studied patients according to safety skin plan:

DISCUSSION:

Patients in the neurological unit and ICUs are usually hemodynamic unstable and therefore unable to move or care for themselves. Although the movement is a natural defense against pressure, however in immobilized patients this defense is lost and may predispose to pressure ulcer development (Joul, Barron , Rosenzweig , Menczel, 2018).. Therefore, this study aims to evaluate the effect of the application of skin safety protocol on the occurrence of pressure ulcers for immobilized patients.

The present study revealed that, despite specialized nursing intervention provided for immobilized patients regarding pressure ulcer interventions, the incidence of pressure ulcer occurrence in patients in Neurological departments and neurological ICU is still high this may be attributed to the fact that immobilized patients are usually with severely limited mobility and not able to signal tissue pressure that may affect the circulation leading to reduce blood supply in the skin and underlying tissues. This stands in position with Jessica et al 2018 they found that the incidence of pressure ulcer rate is high at a hospital in Ethiopia.

There are factor influences the development of pressure ulcer as age; it involves a variety of change in skin condition. The skin becomes thinner, less flexible, and less able to recover from injury, especially in old age.

The present study revealed a significant difference between patient's age and pressure ulcers. This is in line with Joul, et al , 2018 who reported that age affected the severity of pressure ulcer, as patients become older the more their ulcer degree become severe. Serrano, Mendez & Cebollero (2017) reported that no significant between age and pressure ulcer occurrence. Age was found to be a proxy variable for tissue resistance to pressure and most patients are young.

Gender, evidence suggests that being male may be a significant risk factor associated with pressure ulcer development. Coleman et al 2013 found that most patients who developed pressure ulcers were male. This is in line with the current study findings which revealed male patients were more liable to pressure ulcer occurrence than female patients.

Obesity patients are at high risk for pressure ulcer occurrence. The present study finding revealed that overweight increase incidence of pressure ulcer. It may be

attributed the fact that obese patient is usually unable to change position by themselves or to help the nurse to do so. Obese patients in neurological departments and neurological ICU require two or more nurses to change position. Cai, Rahman & Intrator (2013) reported a significant between obesity and pressure ulcer occurrence.

Concerning the clinical risk factors associated with the development of pressure ulcers, the present study found that hypertension was a significant factor in losing skin integrity. Rao, et al 2016 they reported that the most significant risk clinical factors associated with pressure ulcer development were the presence of diabetes and cardiac disease.

A decreased level of consciousness may affect immobilized patients' experience of underlying pressure and pain and predispose to pressure ulcer development. The present study findings revealed a significant relationship between the decreased level of consciousness and pressure ulcer. In this respect Bolton, 2017.

The patient's diagnosis may increase the individual's response to pressure ulcer formation. This study is in agreement with Joul, et al, 2018 who reported that patients who had cardiac and respiratory disorders were more liable to pressure ulcers.

Decrease oxygenation and decrease tissue perfusion may lead to tissue necrosis, allowing for the development of pressure ulcers. The present study findings revealed a significant relationship between a pressure ulcer and a lower degree of oxygen saturation. This study is in agreement with Karayurto, Kyol, Kilicaslan, Akgun, 2016 found that patients who had a low level of oxygen and pressure ulcer.

Friction is the force that is created as two surfaces pass over each other. It usually causes superficial damage, such as epidermis stripping. The friction caused by a patient lying on wrinkled sheets is likely to cause tissue damage. The present study findings revealed a significant relationship between friction and the development of pressure ulcers also; the sacrum and scapula were the most sites with friction. This is in line with Özyürek, Yavuz & Yıldız (2016) who found that friction was an associated factor with dermal pressure ulcer development.

Nursing care to prevent pressure ulcers may be provided to all patients admitted to the neurological departments and neurological ICU but it may be more efficient to first identify the patients with a high risk of developing pressure ulcers and

then provide them to prevent pressure ulcer development. Pressure ulcer risk (PUR) classification scoring systems may facilitate this process. While preventive measures should remain the primary goal, early recognition and treatment of pressure ulcers is imperative. The present study revealed a significant difference between pressure ulcer risk and the development of pressure ulcers. This is in line with Fletcher, Jacquot (2017) they found that the best method to prevent pressure ulcer development was pressure ulcer risk assessment. The Braden scale and Norton scales are recommended in North American guidelines for the prevention of pressure ulcers.

Sites of a pressure ulcer may vary according to positions. Frequently it develops over body prominence. These areas are susceptible due to inadequate cushion of subcutaneous tissues as the back of the head, scapulae, elbows, sacrum, and heels. In this respect, Truong, Grigson, Patel & Liu, 2016 reported that the most common sites in immobilized patients were sacrum and heel. This is in agreement with current study findings that the most common initial sites of pressure ulcer development were sacrum.

This is present study revealed a significant relationship between decrease occurrences of pressure ulcers and skin safety plane which includes relieving pressure, minimize friction, maintain adequate nutrition, manage moisture and maintain immobility. This in line with Mallah, Nassar & Badr, 2014 they found a significant relationship between using pressure-relieving intervention and decreases pressure ulcer development.

CONCLUSION :

Immobilized patients more susceptible to pressure ulcers. Immobility, increase pressure, lack of nutrition, and loss of sensation are factors that lead to the development of pressure ulcers, and their progression depends on frequent assessment.

Constantly application of safety skin plan as (relieve pressure, minimize friction, manage moisture and maintain adequate nutrition) to decrease the occurrence of pressure ulcer. Lack knowledge of nurse about pressure ulcer risk assessment. Common sites of pressure ulcer are sacrum, scapula, and back of the head

RECOMMENDATION:

1. Ongoing assessment of skin condition in Neurological departments and Neurological ICU to identify patients at high risk of pressure ulcer.
2. Application of skin assessment and safety skin protocol especial on admission
3. Training should be conducted for nurses regarding the prevention of pressure ulcers in immobilized patients.
4. Application of infection control measures deterioration of development of pressure ulcer.
5. Replication of the study on large sample size and time.

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تأثير بروتوكول سلامة الجلد على حدوث قرحة الضغط بين المرضى غير المتحركين

الخلاصة

المرضى غير المتحركين معرضون لتطور قرحة الضغط بسبب شدة المرض ، وزيادة مدة الإقامة ، وضعف نضج الأنسجة بسبب عدم استقرار الدورة الدموية ، واستخدام الأدوية الفعالة في الأوعية ، وفقر الدم ، والضعف الحسي ، وعدم الحركة ، وسوء الحالة التغذوية. تلف الجلد واحتكاك الأنسجة الكامنة. يمكن أن يُعرف هذا النوع من الضرر أيضًا بقرح الضغط أو تقرحات الفراش أو قرح الاستلقاء. تهدف هذه الدراسة إلى تقييم تأثير بروتوكول سلامة الجلد على حدوث قرحة الضغط بين المرضى غير المتحركين. التصميم: تم استخدام تصميم بحثي شبه تجريبي. العينة: 70 عينة من المرضى البالغين من كلا الجنسين. قسمت إلى مجموعتين (دراسة وضبط) كل مجموعة تتألف من 35 مريضاً. المكان: أجريت الدراسة في مستشفى جامعة المنصورة بأقسام الأمراض العصبية ووحدة العناية المركزة العصبية. الطريقة: تم تطبيق البروتوكول المكون من إجراءات التمريض بعد تحديد عوامل الخطر باستخدام مقياس برادن للتنبؤ بقرحة الضغط. تم استخدام أداتين ، أحدهما حالة قرحة الضغط ، أداة 2 لقائمة صيضان مراقبة سلامة الجلد ، وقد تم ذلك في وقت الإدخال حتى ستة أيام. النتيجة: أظهرت البيانات أن 70٪ من المرضى حافظوا على سلامة بشرتهم طوال فترة الدراسة ، و 30٪ أصيبوا بالمرحلة الأولى من القرحة. كان تأثير بروتوكول سلامة الجلد معنوياً إحصائياً. التوصية: من المهم تعزيز مستوى الوعي لدى الجمهور والمرضى ومقدمي الرعاية الصحية أيضاً فيما يتعلق بأهمية تطبيق بروتوكول سلامة الجلد للمرضى غير المتحركين من البرامج التعليمية الاعتيادية للقبول لتحديث معرفة الممرضة باستمرار بالممارسة المتقدمة والفعالة للعناية بالبشرة والكشف المبكر عن تقرحات الضغط.

الكلمات المفتاحية: بروتوكول سلامة الجلد ، قرحة الضغط ، مرضى التجمد