CODEN [USA]: IAJPBB ISSN: 2349-7750

INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES
http://doi.org/10.5281/zenodo.3518267

Available online at: http://www.iajps.com *Research Article*

PREVENTION OF PRESSURE ULCER: AN INTERVENTION

[1]Mehdi Hayat Khan, [2]Sana Sehar Vincent, [3]Tanzeel Ul Rahman, [4]Ayazda Farhana

[1]Nursing Instructor,University of Lahore, [2]Assistant Professor, University of Lahore., [3]Nursing Instructor, Regional Training Institute, Lahore, Population Welfare Department Punjab, [4]Principal, Ghurki Nursing College.

Article Received: August 2019 **Accepted:** September 2019 **Published:** October 2019

Abstract

In the hospital, pressure ulcer is devastating outcomes of patient and family, especially in critical ill patient admitted in Intensive care unit (ICU). The formation of pressure ulcer in medical surgical patient reflects a gap between nursing practices and nursing responsibility to reposition the patient. The purpose of this Research was to implement the pressure ulcer toolkit and use of automated patient repositioned bed (APRB) for the patients of medical and surgical ICU patients over the period of ten weeks. A medical and surgical ICU of tertiary care hospital (Jinnah Hospital Lahore) of Punjab has showed an incidence of an increase pressure ulcer development over the last five years. In addition, Lewin's theory is utilized to infuse a change in nursing practices to reposition high risk patient accordingly. This framework of study provides quality improvement of plan, do, study and act.

Healthcare research and quality (HRQ) toolkit utilization for pressure ulcer prevention and use of APRB for every critical patient of medical surgical ICU, that was experiencing pressure ulcer five to six patient per month, result in zero over ten week's intervention. HRQ toolkit and APRB for the prevention of pressure ulcer was successful in highly susceptible patient and was installed systematically of multiple units in an organization.

Keywords: *Prevention of pressure ulcer, automated patient reposition bed, nursing intervention for pressure ulcer, toolkit for pressure ulcer prevention, Intensive care unit.*

Corresponding author:

Dr. Mehdi Hayat Khan,

Nursing Instructor,University of Lahore.

QR code

Please cite this article in press Mehdi Hayat Khan et al., ***Prevention Of Pressure Ulcer: An Intervention,*** *Indo Am. J. P. Sci, 2019; 06(10).*

INTRODUCTION:

The incidence of hospital acquired pressure ulcer (HAPU) of medical surgical ICU in tertiary care hospital of Pakistan was 90 percent in 2017 and 70 percent in 2016. This increase proportion of HAPU in medical surgical ICU became site for that Research. Four HAPUs was identified in ICU in 2016 each month and twelve patient recorded at the end of year 2017 per month. The incidence is calculated using acquired number of pressure ulcer patient divided by total number of patient in the hospital. The national of HAPUs is 0.32% of Intensive care units [9]. When the patient lies on the bed for prolong period of time, sacrum and heels are more prone to develop pressure ulcer (Hermans & call, 2015).

The patients on medical and surgical unit were repositioned manually; it requires two and more care givers to transfer the patient from bed and creates a problem while migration. This practices of manually transferring patient causes a friction and shear, leads to blockage of capillary bed in the skin, result in tissue death (pressure ulceration). APRB minimizes friction and shear, when compared to manual method (Hermans & call, 2015). Nursing intervention, education to nursing staff and timely recognition of high risk patient can be uncovered.

Purpose of Research:

The aim of this Research was to analyze the use of HRQ toolkit and APRB in prevention of pressure ulcer in medical and surgical ICU. The toolkit provides guidelines and strategies in educating the healthcare providers to implement and evaluates the tactics. The APRB is new technology that introduces reposition the patient's effectively and efficiently. If the Research were successful, Pressure ulcer prevention toolkit and APRB strategies were implement in tertiary and teaching hospital of Pakistan.

Literature Review:

A systemic literature review was conducted on nursing intervention and strategies to minimize pressure ulcer development in the hospitals**.** Medline and CINAHL was searched with keywords; hospital acquired pressure ulcer, nursing intervention for pressure ulcer, use of AHRQ toolkit and automated patient repositioned bed for patients. Articles showed other intervention to reduce pressure ulcer instead of APRB.

Literature also identified that AHRQ kit was an effective template to introduce and implement new technology with prevention strategies in different healthcare settings. Pressure ulcer development during patient's stay in hospital has directly linked to nursing care and a nursing sensitive indicator [10]. In addition, it lowered the risk of pressure ulcer, if the patient kept free from moisture along with repositioning. When the patient migrates in the hospital and slides down in the bed, nurses will boost up in creating friction [6]. Moreover, an effective method to reduce patient's risk of pressure ulcer development is frequent repositioning.

A study showed that routine repositioning has reduced the development of pressure ulcer by 14% [2]. Immobility of bed blocks the peripheral perfusion and skin integrity is lost over the bony prominences [5]. Therefore, bed repositioning is essential in preventing the hospital acquired pressure ulcer. Some bony prominences like heal and sacrum remains at risk, in spite of repositioning by experienced health care providers (Van Oostrom & Caruso, 2013). In the hospital setting, patient's impaired mobility in intensive care unit (ICU) was at greater risk for bed sore formation than medical surgical units [7]. The current standard of practices of two hourly patients repositioning is inadequate.

METHODOLOGY:

The medical and surgical unit has 8 beds within 1250 licensed bed tertiary care hospital in Punjab. The admitted patient in this unit ranges from 18 years to 80 years old, while the pediatric patients were not enrolled in treatment. The hospital provides 24-hours nursing services with team of physician along multiple specialized services. Patients with multiple co-morbid are enrolled for treatment. The unit has patient to nurse ratio is three to two during day and four to two at night and is busy with staff challenging. This has greater impact on repositioning of patient and to prevent bed sore formation. Prioritizing care to high risk patient along with HRQ toolkit and APRB has produce positive patient outcomes. The target population was admitted patient on medical and surgical unit, who are highly susceptible for pressure ulcer formation.

The patient included those who have poor nutritional intake, immobile, weak from serious illness, recovering from surgery and suffering from stroke, because they cannot reposition themselves. Other high risk patients have chronic illness like DM, urinary incontinence and stool expose to their skin creates a moist environment that increase risk of pressure ulcer development [4]. Patient admitted less than 24 hours and with existing stage 4 pressure ulcers were excluded from the study Research, because they need special bed for care as the bed sore has increased in severity during the hospital stay.

The pressure ulcer prevention toolkit manufactured by HRQ outlines to introduce evidence-based practices for preventing bed ulcers in the healthcare settings [1]. The domains of toolkits are used to prepare the team for assessing the readiness for change, to assess the bedside staff knowledge and to educate them to improve the quality of care. Education was provided to medical surgical staff to identify and cover the gap.

When the patient was admitted, a focused standard skin risk assessment was completed by the staff of medical surgical unit. Risk assessment predicts the clinician to identify highly susceptible patient and took preventive measures (Berlowitz et al., 2011). After standard risk assessment tool, the HRQ toolkit is recommended using Braden Scale. The Braden Scale is validated tool for pressure ulcer prediction and being used after permission. Patient's assessments for pressure ulcer risk consist of six subscale of Braden: sensory perception, moisture, activity, mobility, nutrition, and friction and sheer" [8].

The Braden scale ranges from 6-23, if the patient score is 19 or higher, lower the risk of pressure ulcer formation and no specific intervention is required. The lower the number increases the risk of bed sore formation (Omolayo et al., 2013). Any patient who scored under 18 on the Braden scale had customized interventions such as being placed on the APRB to prevent breakdown in skin on the sacrum and heels. Pressure ulcer risk assessment was completed by nurses upon admission and utilized the Braden Scale as standard risk assessment tool. After admission on the unit, patient has been assessed every 48 hours.

The APRB minimizes the suffering of nurses to reposition the patient quickly and safely. An issue was detected when the head of the bed is elevated, the patient slides downward in the bed. In addition, as compared to traditional repositioning, the APRB minimizes the friction and shear and lower the risk of skin breakdown. Some patients who scored less than 18 on Braden scale are placed on APRB. It was innovative best practices that was chosen to implement in the Medical and surgical ICU. A collaborative effort was granted by healthcare professionals to commit the advance and new behavior and implement the strategy of APRB. The healthcare providers completed the skin assessment by utilizing Braden scale to detect the highly risk patient, who were enrolled in the Research.

Research Analysis:

Qualitative methods were used to gain insight on the clinical attitudes survey, the leadership assessment survey, formative and summative surveys to gain insight on the organization readiness for this Research and the barriers or successes of the Research. Quantitative data for the skin surveys was placed in a frequency distribution table for staging the pressure ulcer. Data was utilized by stage I-IV and deep tissue injury. The nursing professionals were guided and included in team was expert wound care nurses for the assessment of pressure ulcer development. Braden scale was used as analysis tool for the data. The reliability and validity of tool was confirmed by a 0.79 score of Cronbach's alpha.

The accuracy of pressure ulcer risk assessment was increased by educating and sharing the Braden score to the nurses. The time consumption was reduced by implementing the APRB. Then behavior of staff was different from the practice of manually turning the high risk patient every two hourly as compared to APRB, as the healthcare professional enter the patient room, he efficiently boost the patient by pressing the button on the patient bed. The desire outcome was cutback in the number of new pressure ulcers. The professional practices were monitored and ensured the implementation of HRQ tool kit and APRB. The nursing professionals documented during the shift and within one month of Research, the pressure ulcer formation declined to nil.

The primary source of data was the patient skin documentation in the medical record revealing the admission Braden Scale score. The skin was assessed at admission, 48 hours after admission and every 24 hours while in the hospital to determine if any pressure injury is formed by using pressure ulcer prevalence tool. The nursing staff repositioned by boosting the patient with the APRB with every interaction and documented this action on the flow sheet. The patient's medical record was accessible through the documentation and electronic system and the hospital also uses as the patient's electronic medical record.

The Research has revealed that, the awareness about pressure ulcer prevention among the health professional was increased and use of Braden scale during the shift for high risk patient. Nurses released that APRB is an effective measure to minimize the HAPUs and revealed that repositioning the patient more often with APRB reduce the risk as compared to boost up manually.

Ethical Consideration:
Ethical consideration included as patient dignity and privacy that was maintained during the study and high risk patient was reported on Braden scale for result accuracy. In addition, it was also considered that manually repositioning requires multiple healthcare providers while in APRB, only one caregiver can boost them up in the bed. The collected data was maintained and compiled through highly secured electronic database and no identity of patient was saved. The Research was presented in the organization's Institutional Review Board (IRB) based on the quality improvement endeavor, not a research Research.

RESULTS:

The Research revealed that the use of HRQ toolkit and APRB correctly, there should be no chance of pressure ulcer formation. The HRQ toolkit has guided the team to best practice intervention, in prevention of bed sores. The bed sore is localized injury to dermis and epidermis over a bony prominence as a result of pressure or with friction and shear combination (Tzeng etal., 2013). The APRB has minimized the suffering of nurses to boost the patient easily and frequently. It also has reduced the friction and shear, as boosting with device is smoother and less aggressive as pulling manually [3].

This Research confirmed that the interventions of APRB and HRQ toolkit were effective in prevention of HAPUs and should be implemented in current nursing practices. In the transition phase of Research, medical and surgical healthcare givers were educated subsequently for urgent need to change the practices for prevention of bed sores.

DISCUSSION:

The increasing number of bed sores on medical and surgical ICU was decreased by successful implementation of this Research. The nursing practice of repositioning of bed ridden patient every two hourly was changed to more frequently by using APRB and HRQ toolkit resulted in zero pressure ulcer formation. The team was educated and awareness was made about the importance of assessing every single patient who is at risk of developing bed sores.

In addition, the survey confirmed that the nurses did not have time to focus on bed sore prevention during their shift and some efficient solution should be taken to incorporate an effective change in the professional practices. The leadership survey showed shortage of budget but could impede future funding in order to purchase APRB and HRQ toolkit for pressure ulcer prevention in medical and surgical ICU. An effective return on investment will be necessary to advocate APRB on other units as well, because these have proven to be an effective part in the collective effort for pressure ulcer prevention.

Bed sore prevention in complex health issue and needs to be addressed the intrinsic and extrinsic factors. The frequent repositioning of high risk patient, one of the intrinsic and extrinsic factor is addressed by educating the nurses and implementing the HRQ toolkit and APR beds to prevent pressure ulceration. The intrinsic risk factors like skin moisture were incorporated in the Braden scale scoring and discussed during hand-off report.

LIMITATION:

The imitation of Research was the reliability of the tool presented in HRQ toolkit. While using the APRB, the nursing assessment to identify high risk patient during admission, laundering of sheets for APRB creates a problem, if the nurses are not allowed to use sheets. If the patient is admitted with community acquired bed sore and was not identified at the time of admission and could be attributed inaccurately to the medical surgical unit.

Another limitation, might be bed sore is developed during prolong surgery in the operating room. These limitations were discussed with Research team to minimize barriers and to keep the Research result valid as possible. The team of Research will ensure and evaluate the root cause of pressure ulcer formation. In future Researchs, more intervention will be developed to protect patient on various surfaces of pressure ulceration.

REFERENCES:

1. Berlowitz, D., Lukas, C.V., Parker, V., Niederhauser, A., Silver, J., Logan, C., & Zulkowski, K. (2011). Preventing pressure ulcers in hospitals: A toolkit for improving quality of care. *Agency for Healthcare Research and Quality*.
2. Bergquist-Beringer, S., Dong, L., He, J., & Dunton, N. (2013). Pressure ulcers and prevention among acute care hospitals in the United States.
3. Connolly, M., Lister, L., & Branch, K. (2015). Asheville specialty hospital's pressure ulcer initiative utilizing The Hercules Patient Repositioner. *Asheville Specialty Hospital*.
4. Dealey, C., Brindle, C.T., Black, J., Alves, P., Santamaria, N., Call, E., & Clark, M. (2013). Challenges in pressure ulcer prevention Cartwright, K. (2016). System-wide Hercules

implementation results in significant patient and caregiver benefits.
5. Fragala, G., & Fragala, M. (2014). Improving the safety of patient turning and repositioning tasks of caregivers.
6. Hermans, M.H.E., & Call, E. (2015). Failure to reposition after sliding down in bed increases pressure at the sacrum and heels
7. Lahmann, N.A., Kottner, J., Dassen, T., & Tannen, A. (2011). Higher pressure ulcer risk on an intensive care? Comparison between general wards and intensive care units.
8. Omolayo, T. (2013). Construct validity of the moisture subscale of the Braden Scale for predicting pressure ulcer sore risk.
9. Spetz, J., Aydin, C., Brown, D.S., & Donaldson, N. (2013). The value of reducing hospital-acquired pressure ulcer prevalence.
10. Tzeng, H.M., Grandy, G.A., & Yi Yin, C. (2013). Staff response time to call lights and unit acquired pressure ulcer rates in adult in-patient acute care units.