



A CROSS-SECTIONAL STUDY ON DECUBITUS ULCER : STRINGENT PREVENTION PRACTICES AND ASSOCIATED RISK FACTORS AMONG ICU PATIENTS IN AN INSTITUTIONAL TERTIARY CARE CENTRE.

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ABSTRACT

Background: Pressure ulcers (decubitus ulcers) are a major concern in intensive care units (ICUs), leading to increased morbidity, length of hospital stay, and healthcare costs. Despite established preventive guidelines, compliance and awareness remain variable. **Objective:** To assess the prevalence of decubitus ulcers in ICU patients, evaluate the preventive measures being practiced, and identify associated risk factors. **Methods:** This cross-sectional observational study was conducted in the ICU of a tertiary care hospital. Data were collected from ICU patients admitted for more than 24 hours. Patient-related factors and care-related practices were documented using a structured checklist. Braden scores were calculated, and presence and stage of pressure ulcers were noted. **Results:** Out of 100 ICU patients enrolled, 10% had pressure ulcers, most commonly located at the sacral and heel regions. Braden score ≤ 12 was significantly associated with ulcer development ($p < 0.01$). **Conclusion:** Despite the known benefits of preventive strategies, implementation remains inconsistent. High-risk patients require stricter adherence to repositioning protocols, pressure-relieving support, and skin care documentation. Regular training and monitoring of ICU staff is recommended.

KEYWORDS : Pressure ulcer, ICU, Decubitus ulcer, Prevention, Braden score, Nursing care

INTRODUCTION

Pressure ulcers, also known as decubitus ulcers or bedsores, are localized injuries to the skin and underlying tissue resulting from prolonged pressure, often over bony prominences. Critically ill patients in intensive care units are at increased risk due to immobility, hemodynamic instability, and comorbidities. Studies have shown that the prevalence of pressure ulcers in ICUs ranges from 10–25%.

Preventive strategies such as regular repositioning, use of pressure-relieving surfaces, skin inspection, and adequate nutrition are crucial. However, gaps in implementation persist due to limited staff awareness, workload, and documentation lapses.

This study aims to evaluate the prevalence of pressure ulcers in ICU patients, assess compliance with preventive measures, and identify associated risk factors.

MATERIALS AND METHODS

Study Design:

Cross-sectional observational study.

Study Setting:

SICU AIIMS Nagpur, a tertiary care institute

Sample Size:

100 ICU patients selected consecutively who fulfilled inclusion criteria.

Inclusion Criteria:

- Age ≥ 18 years
- ICU stay > 24 hours

Exclusion Criteria:

- Pre-existing pressure ulcers at the time of ICU admission
- Readmission to ICU during the same hospitalization

Data Collection:

A Structured Data Collection Form Was Used, Including:

1. Demographic data
2. Braden score (pressure ulcer risk assessment)
3. Presence and stage of pressure ulcer (if any)
4. Preventive practices observed/documented:
 - Repositioning frequency
 - Pressure relieving mattresses
 - Skin inspection records
 - Nutrition support (oral/enteral/parenteral)

- Incontinence management

Statistical Analysis:

Data were entered in Microsoft Excel and analyzed using SPSS version 25. Descriptive statistics were used for demographic data. Chi-square test was used to identify associations between risk factors and ulcer development. $p < 0.05$ was considered statistically significant.

Data confidentiality was maintained throughout the study.

RESULTS

Demographics:

- **Mean Age:** 46.5 years (range 18–75)
- **Male:** 66%, **Female:** 44%

Prevalence Of Pressure Ulcers:

- 10 out of 100 patients (10%) had developed pressure ulcers during ICU stay
- Most common sites: sacrum (70%), heel (22%), occiput (8%)

Risk Factors Identified:

Braden score ≤ 12 : significantly associated ($p < 0.01$)

- ICU stay > 7 days: higher risk
- Morbid obesity: higher risk
- Presence of diabetes and malnutrition were common in affected patients

Preventive Practice Compliance:

- Repositioning chart maintained: 90%
- Pressure-relieving mattress used: 86%
- Skin inspection documented: 94%
- Moisture management in incontinence/Soakage by the surgical wound: 92%

Preventive Practices Observed

Preventive Measure	Number of Patients	Percentage
Repositioning done every 2 hours	90	90%
Use of pressure-relieving mattress	86	86%
Skin inspection documented	94	94%
Incontinence management measures taken	92	92%
Nutrition support provided	86	86%
Braden score documented in records	90	90%

Association Between Risk Factors and Pressure Ulcer

Development

Risk Factor	Ulcer Group (n=10)	Non-Ulcer Group (n=90)	p-value statistically
Braden score ≤ 12	10	12	significant
ICU stay > 7 days	9	16	significant
Morbid obesity	7	11	significant
Diabetes mellitus	3	19	Not significant
Malnutrition (clinically)	8	13	significant
Repositioning not done	8	12	significant
No pressure mattress	9	14	Not significant

DISCUSSION

The prevalence of pressure ulcers in this study (10%) aligns with findings in similar ICU settings. Stringent protocols were implemented meticulously. Surgical wound were managed promptly avoiding soakage and fluid accumulation at dependent areas. Similarly morbid obese patients shows more propensity for decubitus ulcer formation hence mechanical devices for shifting of patients is recommended.

Other factors contributing to decubitus ulcer formation in critical care unit is low nurse-patient ratios, lack of training, or resource limitations.

CONCLUSION

Pressure ulcer prevention in ICU patients requires systematic, protocol-driven care. The presence of high-risk patients demands strict monitoring and documentation. The relatively low rate of decubitus ulcer in our patients is attributed to stringent monitoring and prompt intervention. Institutional efforts should focus on staff training, availability of pressure-relief devices, and regular audits to further decrease such complication in critical care unit.

Recommendations

- Mandatory use of Braden score for all ICU patients
- Enforce repositioning every 2 hours with documented charts
- Meticulous blood sugar control
- Assisted mechanical devices for changing position in morbidly obese patients.
- Ensure availability of pressure-relieving devices
- Conduct regular staff training and awareness programs
- Periodic audits and feedback to nursing staff

Limitations

- Single-center study
- Short duration and limited sample size
- Observer bias in documentation review

REFERENCES:

1. Taryib N, Coyer F. Effectiveness of pressure ulcer prevention strategies for adult patients in intensive care units: A systematic review. *Worldviews on Evidence-Based Nursing*. 2016;13(6):432–444.
2. Jackson D, Durrant L, Bishop E, Walthall H, Betteridge R, Gardner S, et al. Pain associated with pressure injury: a qualitative study of community-based individuals. *J Adv Nurs*. 2017;73(12):3061–3070.
3. National Pressure Injury Advisory Panel (NPIAP). Prevention and Treatment of Pressure Ulcers/Injuries: Clinical Practice Guideline. *The International Guideline*; 2019.
4. Braden BJ, Bergstrom N. A conceptual schema for the study of the etiology of pressure sores. *Rehabilitation Nursing*. 1987;12(1):8–12.
5. Cox J. Predictors of pressure ulcers in adult critical care patients. *American Journal of Critical Care*. 2011;20(5):364–375.
6. Chaboyer W, Thalib L, Harbeck EL, Coyer F. Incidence and prevalence of pressure injuries in adult intensive care patients: A systematic review and meta-analysis. *Crit Care Med*. 2018;46(11):e1074–e1081.
7. Berlowitz D, Lukas CV, Parker V, et al. Preventing pressure ulcers in hospitals: a toolkit for improving quality of care. *Agency for Healthcare Research and Quality (AHRQ)*; 2014.
8. Moore ZEH, Webster J. Dressings and topical agents for preventing pressure ulcers. *Cochrane Database of Systematic Reviews*. 2018;12:CD009362.
9. Labeau S, Van de Vyver K, Rello J, Adam S, Malbrain MLNG. Prevention of pressure ulcers in intensive care patients: a literature review, an evidence-based protocol, and consensus statements. *Intensive Care Med*. 2020;46(3):379–390.
10. Shahin ES, Dassen T, Halfens RJG. Pressure ulcer prevalence and incidence in intensive care patients: a literature review. *Nurs Crit Care*. 2008;13(2):71–79.