

Pressure Injuries in Critical Care: Risks and Strategies for ICU Patients

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Description

Pressure injuries, also known as pressure ulcers or bedsores, are localized damage to the skin and underlying tissue resulting from prolonged pressure or shear forces. They are a significant concern in critical care settings, where immobility, complex medical conditions, and life-sustaining interventions increase patient vulnerability. This article explores the risks associated with pressure injuries in Intensive Care Units (ICUs) and discusses effective strategies to prevent and manage these debilitating conditions.

Risks of pressure injuries in ICU patients

Pressure injuries are a prevalent complication among critically ill patients, with rates higher in ICUs compared to general hospital wards. Multiple factors contribute to this increased risk. ICU patients often experience reduced mobility due to mechanical ventilation, sedation, or physical weakness. Prolonged immobility exerts sustained pressure on bony prominences, such as the sacrum, heels, and occiput, leading to tissue ischemia and necrosis. Hemodynamic instability is common in critically ill patients, with many requiring vasopressor medications to maintain blood pressure. These medications, while life-saving, can reduce peripheral blood flow, compromising tissue perfusion and increasing the risk of pressure injuries. Malnutrition is a frequent issue in ICU patients due to underlying illness or inadequate enteral or parenteral nutrition. Poor nutritional status, particularly protein deficiency, impairs wound healing and increases susceptibility to pressure injuries. Factors such as incontinence, excessive sweating, and drainage from wounds or tubes can lead to skin maceration. Prolonged exposure to moisture weakens the skin's barrier, making it more prone to breakdown under pressure. Comorbid conditions such as diabetes, cardiovascular disease, and advanced age exacerbate the risk of pressure injuries by impairing wound healing, reducing skin elasticity, and decreasing resilience to mechanical stress. Devices such as endotracheal tubes, tracheostomy collars, and limb restraints can create localized pressure points, leading to device-related pressure injuries. These injuries are particularly challenging to prevent due to the necessity of these devices in critical care. The consequences of pressure injuries in ICU patients are profound. They can result in pain, infection, prolonged hospital stays, increased healthcare costs, and diminished quality of life.

Furthermore, pressure injuries are often considered preventable, making their occurrence a marker of quality care.

Strategies for prevention and management

Effective prevention and management of pressure injuries in ICU settings require a multidisciplinary approach that combines evidence-based practices, advanced technologies, and continuous staff education. Key strategies include Early identification of at-risk patients is essential. Tools such as the Braden Scale are widely used to assess risk factors, including sensory perception, moisture, activity, mobility, nutrition, and friction/shear. Regular reassessment ensures timely interventions as the patient's condition evolves. Frequent repositioning alleviates prolonged pressure on vulnerable areas. In ICU settings, where patients may be sedated or ventilated, the use of specialized turning schedules and automated repositioning devices can help maintain pressure redistribution. Elevating the head of the bed to less than 30 degrees, unless contraindicated, reduces shear forces. Advanced mattresses and cushions, such as low-air-loss beds or alternating pressure overlays, provide optimal pressure redistribution. These surfaces are particularly beneficial for high-risk patients who cannot be frequently repositioned. Maintaining skin integrity is paramount. Gentle cleansing with pH-balanced products, prompt management of moisture through absorbent pads, and application of barrier creams can prevent skin breakdown. Regular inspection of the skin for early signs of pressure injuries enables timely intervention. Addressing malnutrition is a cornerstone of pressure injury prevention and healing. Dietitians play a critical role in designing individualized nutrition plans that ensure adequate protein, calorie, and micronutrient intake. Supplementation with vitamins C and zinc may support tissue repair and immune function. To prevent device-related injuries, healthcare providers must regularly inspect and adjust medical devices to minimize pressure. Soft padding and frequent repositioning of devices can mitigate their impact on the skin. ICU staff must be well-versed in pressure injury prevention and management protocols. Regular training sessions, simulation exercises, and audits of care practices enhance awareness and adherence to best practices. Continuous monitoring and meticulous documentation of pressure injury prevention measures are vital for tracking progress and identifying areas for improvement. Digital tools and electronic health records can streamline these processes. Prompt intervention at the earliest

stage of a pressure injury prevents progression to more severe stages. Treatments include offloading pressure from the affected area, applying appropriate wound dressings, and using adjunct therapies such as negative pressure wound therapy or topical growth factors. In cases of infection, systemic antibiotics may be required. Managing pressure injuries necessitates collaboration among physicians, nurses, wound care specialists, dietitians, and physical therapists. Multidisciplinary teamwork ensures comprehensive care that addresses all aspects of prevention and treatment. Pressure injuries represent a significant challenge in critical care, with profound implications for patient outcomes and healthcare resources. ICU patients are particularly

vulnerable due to immobility, hemodynamic instability, and the complexity of their medical conditions. However, through proactive risk assessment, diligent prevention measures, and multidisciplinary collaboration, the incidence and severity of pressure injuries can be substantially reduced. By prioritizing evidence-based practices and fostering a culture of vigilance, healthcare providers can mitigate the burden of pressure injuries in ICUs. Continued research and innovation in wound care technologies, as well as ongoing education for clinicians, will further enhance the quality of care for critically ill patients, ensuring better outcomes and improved quality of life.