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PATIENT POSITIONING: An Overview of Key Criteria

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Abstract

The selection of effective patient positioning products necessitates the inclusion of pertinent criteria related to their impact on skin integrity. Among the most significant criteria is the measurement of capillary interface pressure, defined as the amount of pressure placed on the skin's resting surface over a bony prominence.¹

This paper will review the evidence-based criteria to consider in choosing products for patient positioning.

Introduction

A positioning device is any piece of equipment used for positioning a patient and/or providing maximum anatomic exposure for the body. Devices may include pads in varying sizes and shapes for use at the head, elbows, knees, ankles, heels and sacral areas, as well as support devices for heads, arms, chest, iliac crest, and lumbar region.¹

Positioning devices are used primarily to provide comfort and support while helping maintain a patient's position. The potential for pressure points exists whenever pressure is localized in a particular area. Therefore, to maximize skin integrity and minimize the potential for skin breakdown, choosing a positioner in the correct size and shape to meet patient needs takes on even greater significance.

Evidence Based Criteria

The most important contributor to the development of pressure ulcers is unrelieved pressure.² The measurement of capillary interface pressure, defined as the amount of pressure placed on the skin's resting surface over a bony prominence, (aorn) is commonly used to evaluate pressure points.

Physiologic blood and lymphatic flow rates vary among patients. However, during prolonged unrelieved pressure without position change, capillary pressures may increase to as much as 150 mm Hg.¹

Conversely, pressure measurements less than 32 mm Hg are thought by many clinicians to be safe pressures, while pressures exceeding 32 mm Hg are thought to lead to closure of capillary beds and tissue ischemia. Although capillary interface pressure is a frequently used measurement it is, nonetheless, a measurement that many feel requires further scrutiny.²

Additional clinical factors that need to be considered are angle, shear, moisture, time of compression and individual etiologic factors, with additional research needed to apply this information to the prevention and treatment of pressure ulcers.³

Criteria identified by AORN when selecting positioners include (but are not limited to) the following:

- Ability to hold the patient in the desired position
- Ability to support maximum weight requirements
- Resistance to moisture
- Low risk for moisture retention
- Promotes air circulation
- Non allergenic

The Hartford Institute for Geriatric Nursing (HIGH) and Wound, Ostomy, and Continence Nurses Society (WOCN) agree on these measures for the prevention of pressure ulcers: elevation of the head of the bed to no more than 30 degree (or lowest degree of elevation consistent with the patient's medical condition), use of 30 degree lateral lying position; avoidance of placing the patient directly on his trochanter; use of lift sheets/equipment to reposition rather than dragging or pulling, use of trapeze bar to facilitate the patient who is able to assist with mobility, protection of high risk areas such as the elbow, heel, and sacrum, and use of pillow or wedges to reduce pressure over bony prominences and to keep them from rubbing together.⁴

Selection Considerations

Positioning equipment should always be used in a safe manner per manufacturer's written instructions. Whenever positioning devices are used, it is essential that care is taken to minimize pressure points that may be caused by positioning equipment.

Maintaining the microclimate of a patient's skin, ie, appropriate heat and humidity levels, is another significant factor in helping prevent the development of pressure ulcers. It is well known that high levels of prolonged moisture weaken the skin, increasing the probability of skin breakdown by fivefold. Effective patient positioners should promote air circulation and have a low risk of moisture retention.

Bed-bound patients should be repositioned every two hours if consistent with overall care goals. It is also essential that patients sitting in a chair or wheelchair change position every hour. Patients who can reposition themselves while sitting should be encouraged to do so every fifteen minutes.^{4a}

General positioning safety measures include the need for the patient's heels to be elevated off the underlying surface when possible. Additionally, the use of a device under the patient's knees is recommended to relieve pressure on the lower back. WOCN and others agree that donut type devices as well as foam rings, foam cut-outs, and synthetic sheepskins should be avoided. Lastly, the use of linen items such as towels and sheet rolls do not reduce pressure and may contribute to friction injuries.¹

Conclusion

As has been discussed, positioning devices are used primarily to support and provide comfort for the patient while helping maintain the patient's position. Ensuring that staff understands the physiologic effects of positioning and how to use positioning devices are integral components toward achieving the goal of effective patient support.

The most important factor in the development of pressure ulcers is unrelieved pressure. "One hypothesis asserts that pressure overcoming capillary closing pressure leads to ischemia and reperfusion injury".³ Supporting and maintaining the microclimate of the patient's skin is also important in helping to maintain skin integrity and prevent skin breakdown.

It is essential, therefore that properties of an effective positioner include a low risk for moisture retention and one that promotes air circulation. Implementing the use of an effective positioning device can help maintain skin integrity while promoting patient comfort and therapeutic support.

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