Comparative Surface Analysis of Patient Care Slings and Interface Pressure and Temperature

Objectives: Keeping patient handling repositioning slings under the patient on various pressure redistribution or low air loss bed surfaces can be controversial with clinical nursing practice, in part, due to bed manufacturers’ recommendations. Both wound care specialists and bed manufacturers encourage guidelines that limit layers between the patient and the surface. Such guidelines are for routine linen makeup as well as to reap the benefits of the surfaces’ pressure redistribution or low air loss features. The concern is that the additional barrier between the bed surface and the patient will affect the microclimate, pressure and temperature variables. From a safe patient handling perspective, the purpose of keeping the repositioning sling in place beneath the patient on these surfaces is to provide ready access to complete pressure relief turns and repositioning without shear. Conversely, not having the Repositioning sling in place, would require frequent placement, removal, replacement cycles each time the relevant patient care task was needed. Such activity further exposes caregivers and patients to additional hazards and potential injury. Therefore, an investigation was conducted measuring temperature and pressure on Pressure Redistribution surfaces and Low Air Loss (LAL) surfaces with an assortment of patient repositioning slings to evaluate the sling’s influence on these common hospital bed surfaces.

Methods: Utilizing the FSA4 by Vista Medical, a Pressure Mapping Long Stretch Mat and a Temperature Testing Mat, adult subjects' baseline measures of pressure and temperature on various hospital bed surfaces (pressure redistribution, powered pressure redistribution, low air loss) with head of bed at 30 degree angle were taken. Subsequent measurements were taken of these same two metrics (pressure and temperature) with various styles of repositioning slings' fabrics (polyester woven, polyester mesh and disposable polyester) on the same hospital bed surfaces.

Results: The average measures of the body pressure and body temperature across the various hospital bed surfaces with the various sling styles did not demonstrate any statistically significant variation in pressure or temperature. The variances observed were well below the (mats) measurement tools’ inherent instrument variance. Visual colored and numeric coded mapping of pressure and temperature show areas of increased pressure and temperature on bony landmarks however; no significant changes were noted with the addition of various repositioning slings.

Conclusions: The selection and prolonged use of the tested repositioning slings on various bed surfaces did not appear to negatively impact pressure or temperature. Keeping the repositioning sling under the patient is advantageous to provide patient care providers with a tool which is readily available to assist in the repositioning of the patient on a frequent basis. Fully lifting the patient for repositioning so that there is separation from the bed surface, eliminates the shear forces during repositioning toward head of bed and thus reduces exposure to shear forces. Additionally, ready access to repositioning sling can assist with compliance frequency for pressure relief turns.

Implications: Potential for improved safety for patients and caregivers while performing bed mobility repositioning tasks which are common sources of injury for all. Further, it is the hope, that with increased ease of such task completion, it may assist with patient skin health and outcomes.

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