level only slightly higher than that of a powered, nonLAL static air surface. The evaporative capacity was, in fact, actually significantly less than that of the foam-topped static air surface.

The results reported here indicate that some combinations of incontinence pads and linens can adversely affect the ability of a LAL surface to manage the microclimate of the skin. More work is needed to build on the results of this study and to assess further the effect of the skin microclimate on pressure ulcer incidence.

Limitations

Data are not available to identify which specific variables (interface pressure or microclimate management) have a greater impact on the progression of skin damage that leads to pressure ulcer formation; the presence of linens have been reported to affect both.[25] In addition, the number of combinations of linen products intended for surface use is very large; therefore, it is difficult to test anything beyond a small set of configurations. The present study only used a small portion of currently available products. More research is needed to determine the common characteristics of linen products that do and do not severely impact skin microclimate and other factors that may affect skin integrity. Although the SGHP method used is believed to accurately measure the heat and H_2O withdrawal characteristics of the support surface/linen configuration, the fact that the linens were smoothed free of wrinkles for measurement reproducibility represents a departure from the true clinical situation. It is unclear what effect pad wrinkling would have on performance.

Conclusion

A less-than-optimal skin microclimate may increase the risk of skin breakdown. The results of this study illustrate that the presence of linens on the bed surface often reduces the ability of a LAL surface to combat heat and moisture accumulation at the skin/support surface interface. This suggests that caregivers should try to limit the presence of linens on the surfaces to products that are absolutely necessary. This is particularly true when using high-performance, therapeutic surfaces such as LAL, the performance of which is most likely to be affected. In this study, the use of a linen configuration had widely varying effects on surface heat withdrawal capacity depending on the specific configuration. Compared with heat withdrawal level of 92.5 W/m^2 for the fitted sheet alone, heat withdrawal levels for the various linen combinations varied from 25.8 W/m^2 to 70.6 W/m^2. Use of nine layers reduced the heat withdrawal to the level of a static nonLAL surface. Effects on evaporative capacity were also highly variable. One configuration caused a significant increase in evaporative capacity over the fitted sheet alone, while other configurations reduced evaporative capacity as much as 99%. The lowest evaporative capacity was associated with the use of a plastic-backed pad. In direct comparison, plastic-backed pads interfered with heat withdrawal and evaporative capacity more than nonplastic-backed pads. It is hoped that the data presented can assist caregivers with decisions regarding interventions. ■

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