Evaluating the effectiveness of a new Lateral Turning System to aid Patient Repositioning using Dynamic Interface Pressure Mapping

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Introduction

Repositioning of patients who are at risk of pressure ulcers is paramount in any preventative or treatment plan, in conjunction with pressure redistribution/ relieving surfaces, skin care and nutritional support. The quality of off-loading areas subjected to high pressure will undoubtlly vary among health care professionals dependant on their experience and skill. Difficulties may arise when patients are not clinically stable enough to be physically moved, non-concordant with a repositioning plan and/or distressed when moved due to pain or dementia. This evaluation demonstrated the effectiveness of using a new lateral turning system in comparison to physical repositioning by using dynamic interface pressure mapping.

Methods

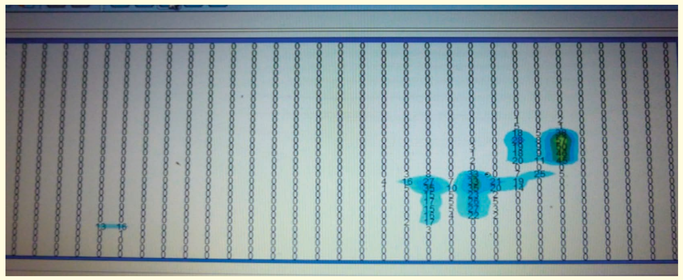
An alternating dynamic pressure therapy full mattress replacement system was placed on the lateral turning system with the continuous bedside pressure mapping system placed on top of the mattress underneath the bed sheet. The evaluation was carried out with the consent of a patient who had been assessed as very high risk of developing a pressure ulcer (Waterlow score of 27)[1] who was already been nursed on the alternating mattress replacement system. The volunteer patient had a history of rheumatoid arthritis and curvature of the spine and found physical repositioning painful at times.

Continuous pressure mapping was performed for 12 hours, broken into 2 segments of 6 hours: the first segment was mapped with nursing staff repositioning the patient on a 2 hourly basis with the lateral turning system not in use. The second segment was with the lateral turning system set to reposition the patient to a 30° tilt every hour with a 15 minute dwell time in the supine position between tilts.

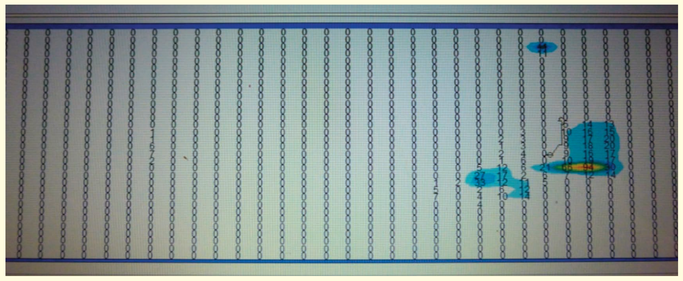
Device Under Study

The lateral turning system under evaluation was the ToTo® (GenieCare) and the mattress replacement system was Trio II (Sidhil Ltd).

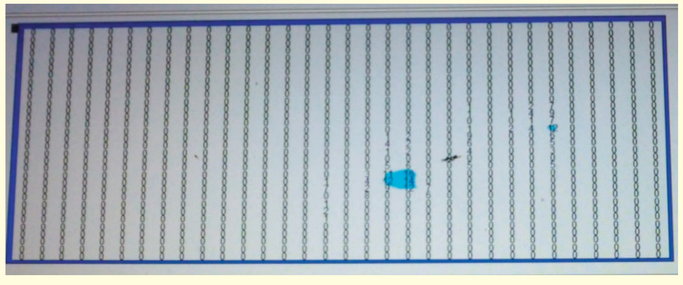
Mapping 10 minutes after patient manually repositioned to 30° Tilt



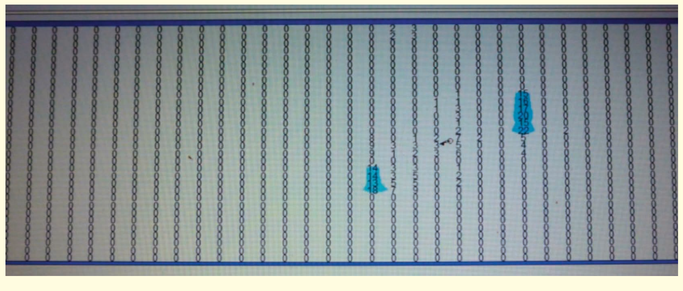
Mapping 1 hour after patient manually repositioned to 30° Tilt

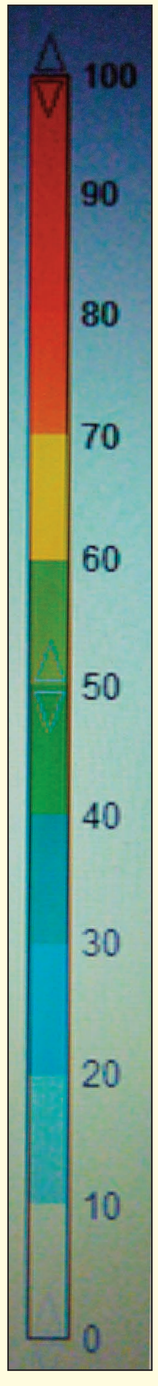


Mapping 10 minutes after patient nursed on 30° Tilt using ToTo®



Mapping 1 hour after patient nursed on 30° Tilt using ToTo®





Results

Peak pressures were noted on the patients' spine, sacrum and shoulder intermittently during the period of being repositioned by nursing staff with peak pressures of 97mmHg in the hip and shoulder after 2 hours.

Whilst using the lateral turning system lower pressures were noted in the spine, sacrum and shoulder areas, the lowest being 5mmHg with a peak pressure of 40mmHg. At regular intervals pressure readings were so low that they were not displayed on the pressure mapping system (<10mmHg).

The volunteer patient reported that she found her position in bed was more comfortable with the lateral turning system than when staff were repositioning her.

Discussion

Effective patient repositioning undoubtedly plays an important role in minimizing pressure in bedbound patients, however in practice some nurses are more skilled at this than others.

Dependent upon an individual patient it may take between 2 – 4 nurses to reposition them to reduce the risk of pressure damage, and then it will depend on the skills of these nurses as to how effective the offloading of pressure would be.

With the lateral repositioning system the patient was effectively placed into a 30° tilt position which they found comfortable and reduced the workload of the nursing staff without compromising patient care. However the author does advocate that if this system is used nursing staff should still perform regular skin assessments to identify early signs of skin damage.

Conclusion

The Toto® is an effective alternative to physical repositioning of patients who are immobile and/or bedbound. The Trust has now invested in a quantity of the ToTo® Repositioning Units which are utilized continually specifically for patients at end of life, non-compliant with manual repositioning and/or clinically unstable or in pain to tolerate manual repositioning

Acknowledgements

I appreciate the help of Sidhil Ltd who kindly provided the pressure mapping system.

References:

1. Waterlow J. A risk assessment card. Nursing Times 1985;81:24-27.

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