Poster Presentation: FUSION™ Hybrid System

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Long term use of a powered hybrid mattress for a high risk patient with multiple co-morbidities

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Introduction and Aims

Powered hybrid mattresses are a combination of both foam and air and can be used as reactive mattresses (without the pump) or as active support surfaces (with the pump). The use of hybrid mattresses is becoming increasingly common in a variety of clinical settings.

The wide range of different support surfaces available means that it can be confusing for practitioners when trying to identify the most appropriate mattress for their patients. With greater demands being placed on practitioners to implement effective strategies for pressure ulcer prevention [1] it is important to understand which types of patients can benefit from these innovative developments in mattress technology.

To establish the clinical efficacy of this type of mattress, the tissue viability team at Wrightington, Wigan and Leigh NHS Foundation Trust evaluated a powered hybrid system on a 28 bedded medical ward.

The patient chosen to go on to the mattress was a 35 year old lady who was admitted to hospital being generally unwell. The medical history of this patient included type1 diabetes, chronic renal failure, chronic obstructive pulmonary disease, bipolar disorder and Guillain-Barre syndrome.

A category 2 pressure ulcer was present to the left heel on admission and the Waterlow risk assessment score fluctuated between 14 and 16 (at risk/high risk). Although the patient was fully mobile, she chose to lie on the bed during the day and did not sit out. The patient could re-position themselves independently and intermittently used a pillow to elevate and offload pressure from the heel. The patient's nutritional status was poor, with BMI being below average.

The primary aim of the evaluation was the prevention of further pressure related tissue damage and deterioration of the existing pressure ulcer. Secondary aims included the patient experience and comfort whilst using the hybrid mattress.

Method

For the purpose of this evaluation a new powered hybrid mattress, the FUSION™ Hybrid from Talley was utilised (Figure 1). The mattress consists of a foam head section, with foam filled air cells in the torso and heel zones. The system delivers an 8 minute, 1-in-2 cell cycle.

The FUSION Hybrid mattress was used in active mode (i.e. with the addition of a

FIGURE 1.
Talley FUSION™ Hybrid mattress system

pump) over a ten week period. Changes in medical condition, skin integrity and existing pressure damage were monitored throughout the evaluation.

Patient feedback was also captured.

Results

During the ten week evaluation period no further pressure related skin damage occurred and the category 2 pressure ulcer to the left heel was successfully resolved whilst the patient was being nursed on the FUSION Hybrid mattress. There was no change to the patient's medical condition and nutritional status remained poor.

The patient found the mattress comfortable and when mobilising on and off the mattress, she felt safe and stable. Both the amount and quality of sleep was rated as 'very good' during the evaluation and overall the patient was 'very satisfied' with the mattress.

The mattress evaluation was stopped when the patient's condition deteriorated and she developed ketoacidosis. An admission to intensive care was required and at that point the patient was transferred to a QUATTRO® Acute full dynamic support surface as a result of her increased pressure ulcer risk profile.

Discussion

The long term use of a powered hybrid system has proven clinically effective for this patient. The decision to use a hybrid mattress was dictated by pressure ulcer risk level, co-morbidities and existing pressure damage.

A high specification foam mattress would not have met the necessary pressure area care requirements and a full dynamic support surface was not indicated as the patient was fully mobile and could reposition themselves independently.

The powered FUSION Hybrid mattress was an ideal choice as it fulfilled the criteria necessary to maintain skin integrity and prevented further pressure related tissue injury. The active support surface in combination with the foam, not only provided effective pressure redistribution, but also proved to be a comfortable support surface for the patient.

Conclusion

Long term use of the powered FUSION Hybrid mattress has proven successful for this patient. Despite several co-morbidities, skin integrity was maintained, with existing pressure damage to the left heel resolving during the evaluation.

In whichever organisation the patient is being nursed, health professionals need to be able to prevent the development of pressure ulcers in vulnerable patients effectively, by employing safe equipment with effective patient outcomes that are cost effective. [2]

Hybrid mattresses clearly do not represent a single solution for pressure ulcer prevention and management, however, the use of powered hybrid mattresses should not be overlooked and as demonstrated in this case study, there is certainly a place for them for appropriate patients who require a support surface that bridges the gap between reactive foam mattresses and active full dynamic mattress replacement systems.

References

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