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Reducing the Incidence of Hospital-Acquired Pressure Ulcers by Using Alternating Pressure Air Mattresses

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What We Learned

Alternating pressure air mattresses (APAMs) reduce the incidence of hospital-acquired pressure ulcers (HAPUs).

Background

HAPUs present issues for patients and hospitals:
- 3 million US inpatients affected
- Estimated aggregate annual cost of $11 billion
- Fast speed of progression and difficult to treat

Purpose

To examine the effects of using APAMS on prevention of hospital-acquired pressure ulcers.

Sample

- Three studies used at-risk convenience population to measure HAPU prevention in hospital environments.
- One study selected their sample population of healthy volunteers to measure head of bed elevations and accompanying pressure measurements.

Methods

- Database search – West Chester University's CINAHL Complete
- Peer-reviewed research articles using randomized controlled trials, featured in nursing/nursing education journals,
- Published 2010 – 2015
- Search terms: 'pressure ulcers" and 'pressure redistribution surfaces'
- Limited to active (vs. reactive)

Results

Span America Air Mattress APM2

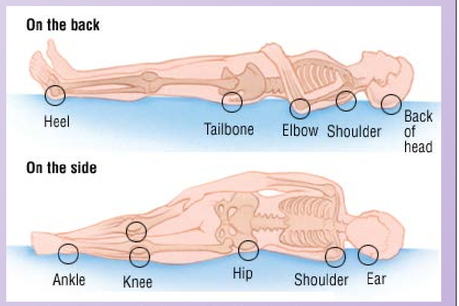

Image from: Drugs.com (Bedsores – Decubitus Ulcers)

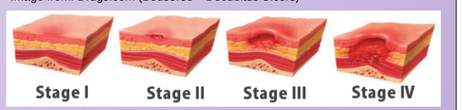

Image from: PCH-online.com

Active APAMs had significant statistical evidence to support their use in prevention of HAPUs.

- Minimum 50% reduction in HAPUs (stage II or greater) when alternating pressure air mattresses were used in place of regular hospital beds.
- Incidence of HAPUs lessen even more when low-air-loss mattresses are introduced.
- Very limited results indicate that active APAMs could treat existing pressure ulcers.
- Interface pressure of ≤30 degrees is an acceptable compromise when patient has respiratory issues.

Discussion

- The findings of the articles reviewed suggest:
  - Active APAMs reduce the incidence of HAPUs.
  - Low-air-loss mattresses are the gold standard for HAPU prevention at the time of the studies.
  - No significant evidence to promote usage of single-stage vs. multi-stage. Both are statistically equal in prevention.
  - Pressure increases exponentially as head of bed elevation increases. For patients with respiratory problems, the compromise is an elevation of 30 degrees or less.

Next Steps

1. Advocated use by healthcare professionals
   - Availability, indications for use, policies and procedures
2. More research
   - Controlled and measured outside influences – turning schedules

Limitations

- Limited number of sources reviewed.
- Limited number of studies relating to the topic.

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