Treatment of pressure ulcers: a systematic review

CRD summary
This review, which evaluated therapies for pressure ulcers, concluded there was little evidence favouring any particular support surface or dressing, nor evidence favouring other treatments compared to standard care. The authors’ conclusions are likely to be reliable.

Authors’ objectives
To evaluate therapies for pressure ulcers.

Searching
The MEDLINE, EMBASE and CINAHL databases were searched from inception to August 2008. Search terms were reported. A hand-search was also performed. The authors performed searches for studies published in English and non-English languages, but decided to include only studies published in English.

Study selection
Randomised controlled trials (RCTs) which evaluated treatment of pressure ulcers were eligible for inclusion. Trials that assessed only adverse events or secondary outcomes, such as pain, were excluded. Only trials that calculated wound size with wound volume and/or surface area, used evaluation tools that incorporated these measurements, or used complete wound healing as outcomes, were included. Trials of nutritional supplementation via any method were eligible.

The wide variety of interventions studied included different types of support surfaces, nutritional supplements, wound dressings, biological agents and adjunctive therapies. Some trials used standard care as a comparator, some compared different test interventions, and some used a placebo as comparator. Over one third of included trials took place in acute care; other trials were based in a variety of settings. A fifth of the trials recruited only participants who were aged 60 or over and 10% of the trials included only participants with spinal cord injuries. Participants had a broad range of pressure ulcer severity. Wound surface area reduction and prevalence of complete wound healing were commonly reported as outcomes.

The authors did not state how the papers were selected for the review, or how many reviewers performed the selection.

Assessment of study quality
Study quality was assessed using a six-point checklist which evaluated: methods of randomisation, allocation concealment, participant blinding, outcome assessor blinding, comparability of groups for other treatments, and use of intention-to-treat analysis. Trials meeting four or more criteria were deemed to be good quality. Reporting of sample size justification was also assessed.

Three reviewers independently assessed study quality and reached consensus.

Data extraction
Trials were classified into three groups, depending on what they were examining: underlying contributing factors, local wound care, or adjunctive therapies. Within these groups the settings were classified as one of the following: acute care, long-term care, palliative care, rehabilitation, ambulatory care, and home care.

The authors did not state how the data were extracted for the review, or how many reviewers performed the data extraction.

Methods of synthesis
There was too much clinical heterogeneity between the studies to allow pooling using meta-analysis, so a narrative synthesis was undertaken. Differences between studies were discussed and study details were tabulated.

Results of the review
One hundred and three RCTs were included in the review (n=5,889). Methodological quality was variable, but often inadequate, with only one trial meeting all the quality standards. Sixteen trials were deemed to be good quality. Only around a fifth of the trials provided a justification of sample size.

Interventions for underlying contributing factors (19 RCTs, n=1,572): For the 12 trials evaluating support surfaces (n=1,214), there was no clear evidence favouring one surface over another. The seven RCTs examining nutritional supplements (e.g. vitamin C, or protein supplements) found mixed results.

Interventions targeting local wound care (63 RCTs, n=3,330): For the 54 trials studying wound dressings (n=2,857), results generally suggested that the dressing being studied was not superior to the alternatives. Nine trials studied biological agents and several found benefits with different topical growth factors (e.g. platelet-derived).

Interventions for adjunctive care (21 RCTs, n=987): No clear evidence of effectiveness was found for use of electric currents, ultrasound, light therapy or vacuum therapy.

Cost information
From a study not included in the review, the authors reported that standardised hospital mattresses cost less than $200 (one-off cost), but specialised support surfaces, which are often rented, can range from less than $5 a month for non-powered mattress overlays to more than $3250 per month for some powered support surfaces.

Authors’ conclusions
Little evidence supported the use of a specific support surface or dressing over the alternatives, nor the use of routine nutritional supplementation or adjunctive therapies compared with standard care.

CRD commentary
The review addressed a clear question and was supported by appropriate inclusion criteria. A number of electronic databases were searched and, although a search was made for studies published not in English, the authors did not report searching for unpublished studies, so some relevant trials may have been missed. Suitable methods were employed to minimise the risks of reviewer error and bias for the process of assessing study quality but the authors did not report on the methods used to select studies for inclusion and extract data. Study quality was assessed and was used in interpreting the results of the review. Comprehensive details of the included studies were provided and an appropriate narrative synthesis was conducted. Forty-five trials reported funding by the for-profit manufacturers of the products being studied. The authors’ conclusions reflect the evidence presented and are likely to be reliable, despite some limitations in the reporting of review methods.

Implications of the review for practice and research
Practice: The authors stated that there is little evidence to support the use of one support surface or dressing over alternatives, and little evidence to justify routine use of nutritional supplements, biological agents and adjunctive therapies compared with standard care. Clinicians should make decisions based on fundamental wound care principles, cost, ease of use and patient preference.

Research: The authors stated that high quality trials are needed to establish the efficacy and safety of many commonly used treatments. Trials are needed to develop standardised methods for measuring wounds and reporting healing rates. Trials of multifactorial wound care interventions should be undertaken to compare them with simpler interventions.

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This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.