A prospective, randomized trial of silver containing hydrofiber dressing versus 1% silver sulfadiazine for the treatment of partial thickness burns

Muangman P, Pandee C, Opasanon S, Muangman S

Record Status
This is a critical abstract of an economic evaluation that meets the criteria for inclusion on NHS EED. Each abstract contains a brief summary of the methods, the results and conclusions followed by a detailed critical assessment on the reliability of the study and the conclusions drawn.

CRD summary
This study evaluated the effectiveness and costs of Aquacel Ag dressings, compared with 1% silver sulphadiazine dressings, for superficial second-degree burns. The authors concluded that Aquacel Ag promoted quicker wound healing, decreased pain, reduced hospital visit frequency, and lowered costs. The study methods and results were clearly reported and the conclusions appear to be appropriate.

Type of economic evaluation
Cost-effectiveness analysis

Study objective
This study evaluated the effectiveness and costs of the Aquacel Ag dressing, compared with a 1% silver sulphadiazine dressing, for superficial second-degree burns.

Interventions
In the Aquacel Ag group, the dressing was applied with 1cm overlap and covered with one layer of gauze. Dressings were evaluated on the first day after the burn injury, and every three days after that, until the wound had healed. In the silver sulphadiazine group, a 1% silver sulphadiazine dressing was applied and removed daily, with wounds observed daily, by a burn surgeon, until they were healed.

Location/setting
Thailand/out-patient care.

Methods
Analytical approach:
The economic evaluation was based on a prospective randomised trial, of 70 patients, conducted at the Siriraj Hospital out-patient burn clinic, between December 2006 and February 2008. The perspective was not explicitly stated.

Effectiveness data:
The effectiveness data were from the trial. The primary measure was the time to wound healing, defined as epithelial covering of the wound. The time to wound healing was evaluated using Kaplan-Meier survival analysis. Secondary effectiveness measures were patient pain during wound dressing, measured on a 1 to 10 visual analogue scale, for those aged over six years, or the face pain rating scale, for younger children.

Monetary benefit and utility valuations:
Not relevant.

Measure of benefit:
There was no summary measure of benefit; the clinical outcomes were the measures of benefit.

Cost data:
The costs included dressings, hospital charges, pain medication, and transport paid by the patient for hospital visits. These were from the trial. All costs were reported in US $.

Analysis of uncertainty:
The statistical significance of the differences was measured using two-tailed unpaired student's t-tests and $\chi^2$. The differences in wound healing time were reported with 95% confidence intervals.

Results
The average time to wound closure was significantly shorter in the Aquacel Ag group (10 days; SD 3), than in the silver sulphadiazine group (13.7 days; SD 4.3; p<0.02). The difference was 3.7 days (95% CI 1.9 to 5.4) in favour of Aquacel Ag.

With Aquacel Ag, patients experienced statistically significantly less pain at dressing change, at one, three, and seven days (p<0.02), with pain scores ranging between 2 and 3 points less on the 10-point scale, at each time point.

Hospital costs were $43 (SD 28) for Aquacel Ag, and $57 (SD 25) for silver sulphadiazine (p=0.03). Travel costs were $9 (SD 4) for Aquacel Ag, and $36 (SD 14) for silver sulphadiazine (p<0.01). The total costs favoured Aquacel Ag ($52; SD 29) over silver sulphadiazine ($93; SD 36; p<0.01).

Authors’ conclusions
The authors concluded that Aquacel Ag promoted quicker healing, decreased pain, reduced hospital visit frequency, and lowered costs.

CRD commentary
Interventions:
The interventions were sufficiently described and appear to have been appropriate.

Effectiveness/benefits:
The effectiveness measures were clearly defined and clearly reported. The study was small and used computer randomisation. It does not appear that there were any adjustments for baseline differences. The mean age of Aquacel Ag patients was lower, which could affect wound healing, otherwise it did not appear that there were any significant differences in baseline characteristics.

Costs:
The costs were clearly reported, but hospital charges were reported as a total, where information by item would have been useful. The itemisation of dressing costs, hospital fees, and pain medication would have been useful. The authors acknowledged that a potential limitation of their study was the limited cost categories included. The price year was not reported, which may hinder comparison with other studies.

Analysis and results:
The analytic methods were appropriate and the results were reported clearly. The authors discussed the findings from similar studies. This study was small, with correspondingly large confidence intervals. An analysis of the effects of uncertainty, on the likelihood of superior efficacy or costs savings, could provide valuable information for decision makers.

Concluding remarks:
The study methods and results were clearly reported and the conclusions appear to be appropriate.

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