Flap anchoring following primary breast cancer surgery facilitates early hospital discharge and reduces costs

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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
The objective was to compare the costs and outcomes following flap fixation or routine drain placement after primary breast cancer surgery. The authors concluded that flap anchoring resulted in a significantly shorter hospital stay than routine drainage and a comparable rate of seroma formation and could produce considerable financial savings. The study was insufficiently reported and had methodological limitations that might affect the validity of the authors’ conclusions.

Type of economic evaluation
Cost-effectiveness analysis

Study objective
The aim was to compare the costs and outcomes following flap fixation or routine drain placement in breast cancer surgery.

Interventions
Routine drain placement was compared with flap anchoring after primary breast cancer surgery.

Location/setting
UK/secondary care (hospital specialist breast unit).

Methods
Analytical approach:
The economic evaluation was based on a clinical study, with the index hospitalisation as the time horizon. The authors did not state the perspective.

Effectiveness data:
The clinical estimates were from a non-randomised prospective study conducted in one hospital. The data were recorded prospectively from 2006 to 2008. Patients were allocated to the treatment group by their consulting surgeon and followed-up until discharge. Male patients and patients who underwent immediate reconstruction were excluded. The data were available for 135 patients, with 76 in the flap anchoring group and 59 in the routine drainage group. The main clinical effectiveness estimates were seroma formation and culture-positive infection rates.

Monetary benefit and utility valuations:
Not relevant.

Measure of benefit:
The main benefit measure was seroma formation. The rate of wound infection was considered.

Cost data:
The resource use data were collected prospectively during the study. The cost items included in the analysis were: suction drain and bottle, 2.0 vicryl, silk drain stitch, and length of hospital stay (single surgical bed). These equipment and surgical bed costs were from the institution’s finance department (West Suffolk Hospital). All costs were reported in UK pounds sterling (£).
Analysis of uncertainty:
Mann-Whitney and Fisher's exact tests were carried out to determine the statistical differences between parameters.

Results
The seroma rates were 49% with flap anchoring and 59% with routine drainage (p=0.22). Six patients had wound infection with flap anchoring and one with routine drainage.

The median length of stay was significantly lower in the flap anchoring group (1.88 days, SD 0.96) than in the routine drainage (2.67 days, SD 1.1; p<0.0001). For every 100 patients who underwent breast cancer surgery, approximately 79 bed days could be saved by employing the flap fixation technique. This equated to a financial saving of more than £24,043.

Authors' conclusions
The authors concluded that flap anchoring resulted in a significantly shorter hospital stay than routine drainage, with a comparable rate of seroma formation and could represent considerable financial savings.

CRD commentary
Interventions:
The interventions were reported adequately. The comparator was appropriate and likely to reflect the standard clinical practice.

Effectiveness/benefits:
The evidence was from a single-centre non-randomised study that might have been open to bias from a lack of blind assessment and randomisation. The authors acknowledged there might have been selection bias, but stated that the two groups were comparable at baseline. The main inclusion and exclusion criteria were reported. The surgeon characteristics were not reported and might have influenced the results. The sample size was reported and did not appear to be based on power calculations. This analysis reflected the experience of one hospital and there was no statement about how representative this was of other institutions. These issues might have affected the validity of the clinical analysis.

Costs:
The perspective was not stated, but it appears to have been a hospital perspective. The costs following hospital discharge, such as drain removal in the community by district nurses, return to the ward, and postoperative antibiotics, and the costs for wound infection and seroma were not included, but the authors stated that these rates were comparable between the two groups. The resource quantities were reported separately from the unit costs. The price year was not stated and this might hamper future inflationary exercises. The costs were those of one hospital; the authors did not discuss whether their findings could be generalised to other settings.

Analysis and results:
No statistical analysis was performed on the total costs between the two groups. No cost-effectiveness ratios were calculated, but this was appropriate as flap anchoring was more effective and less costly than routine drainage. The uncertainty was not investigated. The lack of sensitivity analysis made it difficult to assess if the study results were robust. A statement about the impact of introducing the procedure at a national level was given as a conclusion, but no discussion was made about the generalisability of the data, including its reliance on a non-randomised study in one hospital. In general, the reporting was insufficient.

Concluding remarks:
The study was insufficiently reported and there were methodological limitations that might affect the validity of the authors’ conclusions.

Funding
No external funding.
Bibliographic details

PubMedID
20847821

DOI
10.1159/000301586

Original Paper URL
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2931043/?report=abstract

Indexing Status
Subject indexing assigned by CRD

MeSH
Breast Neoplasms; Cost-Benefit Analysis; Humans; Mastectomy; Surgical Flaps; Suture Techniques

AccessionNumber
22010001755

Date bibliographic record published
04/05/2011

Date abstract record published
24/08/2011