Aloe vera for preventing radiation-induced skin reactions: a systematic literature review

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CRD summary

The authors concluded that there was no evidence to suggest that Aloe vera gel is effective in the prevention or minimisation of radiation-induced skin reactions. Methodological and clinical limitations of the studies were presented. The conclusions are supported by the evidence presented in the review.

Authors' objectives

To review the evidence on the effectiveness of Aloe vera gel for radiation-induced skin reactions.

Searching

MEDLINE, EMBASE, CINAHL, PsycINFO, the Cochrane CENTRAL Register, the Cochrane Database of Systematic Reviews, DARE, AMED and CISCOM were searched for studies indexed up to August 2004; the search terms were reported. Unpublished and ongoing trials were sought by searching the National Research Register and ClinicalTrials.gov, and through contact with experts. The reference lists of relevant articles were also checked. No language restrictions were applied.

Study selection

Study designs of evaluations included in the review

All study designs were eligible for inclusion. The included studies were randomised controlled trials (RCTs).

Specific interventions included in the review

Studies of Aloe vera gel used for the prevention or treatment of radiation-induced skin reactions were eligible for inclusion. The included studies evaluated Aloe vera gel applied by the patient or nurse to the affected area following radiation therapy. Frequency, timing and duration of application, and the comparator used varied across the included studies.

Participants included in the review

Studies of patients with cancer undergoing radiotherapy were eligible for inclusion. The included studies evaluated those with paediatric cancer (mainly Hodgkin's disease), breast cancer or various other cancers. The median age was 11 years in studies of paediatric cancer, and ranged from 18 to 89 years in studies of adult populations.

Outcomes assessed in the review

Studies that reported a clinical evaluation of skin reactions were eligible for inclusion. The included studies used various measurements such as clinician- or nurse-assessed scales and patient questionnaires.

How were decisions on the relevance of primary studies made?

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

Assessment of study quality

The authors assessed aspects of validity including randomisation procedure and recruitment, blinding, sample size and losses to follow-up, and the handling of missing data. Clinical commentaries were provided, based on the appropriateness of the intervention, clinical relevance and practical issues.

Two independent reviewers determined the validity of the included studies using a standardised form, with input from a statistician if needed. Any differences were resolved by discussion, or through discussion with a third reviewer. An experienced herbalist and clinical oncologist provided the clinical commentaries.

Data extraction

Two independent reviewers extracted the data using a standardised form, with input from a statistician if needed. Any differences were resolved by discussion, or through discussion with a third reviewer. Data on each outcome of interest were extracted.

Methods of synthesis

How were the studies combined?

The results of individual studies were tabulated and a summary of each included study was presented.

How were differences between studies investigated?

Differences between the studies were apparent from the tabulated results and were discussed in the text.

Results of the review

Five RCTs (n=645) were included in the review.

Overall, the included studies demonstrated several methodological limitations: a lack of reporting of the methods used to randomise patients, concealment of allocation, blinding, sample size and handling of losses to follow-up. The authors also noted clinical limitations, such as variations in the frequency and timing of application, lack of information on the intervention itself and cointerventions.

One study (n=45) of children with cancer reported that anionic phospholipid-based cream was statistically significantly more effective than Aloe vera for skin comfort and dermatological assessment, but no change in toxicity score was found. This study was only available as an abstract.

One study (n=225) of women with breast cancer reported that aqueous cream was statistically significantly more effective in reducing dry desquamation and treatment-related pain than Aloe vera gel. Allergic reactions were experienced by two patients receiving Aloe vera and one patient receiving aqueous cream.

One study (n=73) of patients with various cancers reported contradictory results between Aloe vera gel and unscented soap.

Two studies (n=302) reporting on the same population of women with breast cancer did not show that Aloe vera gel was effective in comparison with placebo or no treatment, respectively. Allergic reactions were experienced by three patients receiving Aloe vera gel and one receiving placebo.

Authors' conclusions

There was no evidence to suggest that topical Aloe vera gel is effective in preventing or minimising radiation-induced skin reactions in cancer patients. In two studies Aloe vera was less effective than other creams.

CRD commentary

The review addressed a clear research question and the inclusion criteria appeared appropriate. A comprehensive search for both published and unpublished studies was performed, with attempts made to minimise language bias. Methods were used to minimise reviewer error and bias in the data extraction and validity assessment processes, although it was unclear if such methods were used to minimise bias at the study selection stage. Appropriate criteria were used to assess the internal and external validity of each study.

Adequate data reported on each of the included studies highlight the considerable variation across the studies and suggest that the decision not to statistically combine the studies was appropriate. The authors presented a detailed discussion of these variations and went on to highlight pertinent methodological and clinical limitations of the available evidence. The authors' conclusion seems appropriate.

Implications of the review for practice and research

Practice: The authors did not state any implications for practice.

Research: The authors stated that an RCT is needed to compare standardised Aloe vera product with current best practice. Further research on the prevention, minimisation and management of radiation dermatitis is also needed.

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Bibliographic details

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Other publications of related interest

Volger BK, Ernst E. Aloe vera: a systematic review of its clinical effectiveness. B J Med Pract 1999;49:823-8.

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Subject indexing assigned by NLM

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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.