A systematic review to investigate the effectiveness and acceptability of interventions for moist desquamation in radiotherapy patients

Kedge EM

CRD summary
This review found mixed evidence concerning use of hydrogels and hydrocolloid dressings for moist desquamation in radiotherapy patients, despite being recommended by many guidelines. Improved patient comfort was sometimes seen. There was limited evidence to support other interventions. The author's conclusions should be treated with caution as the evidence provided was very limited, heterogeneous and of questionable quality.

Authors' objectives
To evaluate the safety and effectiveness of interventions for moist desquamation in radiotherapy patients.

Searching
AMED, Academic Research Database Repository, BIOM, BIOSIS Previews, British Library Integrated Catalogue, British Nursing Index, CINAHL, The Cochrane Library, Current Controlled Trials, Dissertation Abstracts Online, DARE, EMBASE, MEDLINE, ReFeR, HSRProj, IBSS, Index to Theses, UKCCCR National Register of Cancer Trials, NRR, Web of Knowledge, ProQuest, Zetoc and the National Cancer Research Network website were searched from 1990 for publications in any language. No end date of the search was reported; the most recent included paper was published in 2005. Several other websites and conference proceedings were searched. Search terms were reported. The bibliography of each retrieved article was handsearched. Gray literature was included. Radiotherapy managers, oncologists and oncology nurses in UK, pharmaceutical companies and the authors of key papers were contacted and a posting was placed on a relevant research group website in order to access further studies. Studies published before 1990 were excluded. Financial constraints prevented translation of all foreign language papers.

Study selection
Randomised controlled trials (RCTs) and controlled clinical trials without randomisation (CCTs) that investigated the impact of one or more interventions for moist desquamation in radiotherapy patients of any diagnosis were eligible for inclusion. Eligible studies had to measure wound healing time (primary outcome) or other skin integrity measures and some form of patient comfort and/or acceptability measure. Included studies also reported quality of life and clinical infection of wound sites. Studies that investigated prophylactic agents or preventative interventions not related to treatment were excluded. Wound healing time was defined as the number of days from recruitment until skin integrity had returned, calculated using either wound size and/or skin reaction levels.

The interventions included: dressings (tea tree oil, moisture vapour permeable (MVP) or 2nd Skin hydrogel dressings); saline cleansing plus a dressing (hydrocolloid dressings, 2nd Skin or different Duoderm hydrocolloid dressings sometimes secured with tape, or non-adherent dressing taped at corners); cream (Sucralfate cream); a hydrogel (IntraSite); or a dressing plus a cream, Duoderm hydrocolloid dressing plus 0.5% to 2% hydrocortisone cream. The most common control was gentian violet (0.5% or 1%), sometimes with a gauze dressing; also used were saline and in individual studies, a dry dressing, paw-paw ointment plus a pad or sorbolene cream.

One reviewer performed the study selection.

Assessment of study quality
Methodological quality was assessed by one reviewer using the clinical appraisal skills programme (CASP) guidelines for RCTs, where 10 questions addressed the criteria: study had a clear aim; study design appropriate; recruitment strategy appropriate; relevant data collected; relationship between researcher and participants considered; ethical issues considered; data analysis rigorous; clear statement of findings; and how valuable was the research. No studies were judged to be of poor quality.

Data extraction
One reviewer performed data extraction. Healing times with the significance between results and number of infections were extracted. For other outcomes, only the significance of the result was extracted. Authors were contacted for missing information.

**Methods of synthesis**
A narrative synthesis was provided as the interventions in the studies were heterogeneous and other confounding variables were present.

**Results of the review**
Ten relevant studies were identified: eight RCTs (n=466, range nine to 146) and two CCTs (n=109, 19 and 90). Four RCTs were of high quality. Two RCTs were of fairly high quality. Two RCTs and one CCT provided insufficient information. One CCT was rated of fairly low quality.

**Healing time (nine studies):** Only two studies (RCTs) showed a significant reduction in healing time for the interventions MVPD versus control (gentian violet) (p=0.05) and saline cleansing plus Duoderm® CGF hydrocolloid dressing secured with tape versus control of 1% gentian violet plus a gauze dressing if required (median 11 days versus median 68 days, p<0.001). One RCT showed a significant increase in healing time for the intervention group IntraSite® hydrogel versus dry dressing (approximately 10 days versus approximately eight days, p<0.04).

**Pain and comfort (all studies):** Mixed and conflicting results were reported. Significant benefits were reported for two interventions (RCTs). MVPD gave a lower level of discomfort at 24 hours and when lesions were largest versus control of gentian violet (p<0.001). Saline cleansing plus Duoderm® CGF hydrocolloid dressing secured with tape gave a higher level of comfort versus control of 1% gentian violet plus a gauze dressing if required (p=0.01). Conversely, one RCT found saline cleansing plus an extra-thin Duoderm CGF hydrocolloid dressing was significantly associated with higher pain severity (p=0.01) and pain frequency (p=0.03) yet also higher comfort (p=0.002) versus controls of 1% gentian violet.

**Quality of life (six studies):** Two RCTs showed significant benefits for the intervention groups. Both interventions were saline cleansing plus a Duoderm CGF hydrocolloid dressing versus controls of 1% gentian violet.

**Infections (six studies):** Results were inconclusive.

**Authors’ conclusions**
Despite being recommended by many guidelines, there was mixed evidence concerning use of hydrogels and hydrocolloid dressings for moist desquamation in radiotherapy patients. However, improved patient comfort was sometimes seen, which was arguably equally important. There was limited evidence to support other interventions. Further research was needed urgently.

**CRD commentary**
The review addressed a well-defined question in terms of participants, interventions, study design and relevant outcomes. Relevant databases were searched in any language and unpublished studies were considered. Study quality was assessed, but the criteria used were limited and reporting was unclear. It was not possible to reduce error and bias in the review process since only one reviewer performed the review. Some relevant study details were reported (particularly of interventions and comparisons), but no details of the participants were provided and there were limited details of the results. The author reported that relevant information was missing in some of the studies. A narrative synthesis was provided because the interventions in the studies were heterogeneous and other confounding variables were present (these were not described). The author commented that assessor and patient blinding were not possible due to the visible differences between the interventions used. In view of potential limitations arising from the review process, uncertainties about the quality of included studies, limited evidence presented from mostly small studies and study heterogeneity, the author’s conclusions should be treated with caution.

**Implications of the review for practice and research**
**Practice:** The author stated that skin reactions should be systematically monitored (perhaps using the RTOG scale) so that patients could receive timely and appropriate treatment. Radiotherapists should share their best practice for moist
desquamation in radiotherapy patients and/or the results of their unpublished studies, perhaps through the ACORRN (Academic Clinical Oncology and Radiobiology Research Network) website.

Research: The author identified an urgent need for further research of high quality (preferably RCTs with sufficient participants to produce meaningful conclusions) to include further investigation of MVP dressings and soft silicone dressings.

Funding
Not stated.

Bibliographic details
Kedge EM. A systematic review to investigate the effectiveness and acceptability of interventions for moist desquamation in radiotherapy patients. Radiography 2009; 15(3): 247-257

DOI
10.1016/j.radi.2008.08.002

Original Paper URL
http://dx.doi.org/10.1016/j.radi.2008.08.002

Indexing Status
Subject indexing assigned by CRD

MeSH
Radiodermatitis; Radiotherapy Dosage; Skin Care; Wound Healing

AccessionNumber
12009110098

Date bibliographic record published
10/03/2010

Date abstract record published
28/07/2010

Record Status
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.