A systematic review of contact dermatitis treatment and prevention

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CRD summary
The objective of this review was to provide evidence-based recommendations for the treatment and prevention of contact dermatitis. The authors concluded that a limited number of interventions effectively treat or prevent irritant or allergic contact dermatitis, but research is needed. Overall, the authors' conclusions and recommendations for research appear to be supported by the data presented.

Authors' objectives
To provide evidence-based recommendations for the treatment and prevention of contact dermatitis (CD).

Searching
MEDLINE, EMBASE and the Cochrane Library were searched from January 1996 to June 2003 for studies published in English. A full search strategy was reported. Reference lists of relevant articles, reviews and retrieved publications were also checked.

Study selection
Study designs of evaluations included in the review
Controlled trials with at least 10 participants were eligible for inclusion. Randomised controlled trials and cohort studies were included.

Specific interventions included in the review
Studies of the treatment of, or preventive measures for CD were eligible for inclusion. Studies of the treatment of only one contact allergen were excluded. The included studies were classified as treatment with corticosteroids or non-steroidal medication (macrolides immunomodulators, barrier creams, emollients, natural or herbal products), glove-related interventions, modifications to work processes or environment, and psychosocial or educational interventions.

Participants included in the review
Studies of adults with either allergic (naturally-occurring) CD or irritant (experimentally-induced) CD (ACD and ICD, respectively) were eligible for inclusion. Studies of patients with immediate hypersensitivity reactions, contact urticaria or atopy were excluded. Studies of mixed populations were eligible if data were presented separately for patients with CD. Most studies evaluated healthy volunteers; other studies specified occupations such as hairdressers, student auxiliary nurses, and employees of hospitals (with severe chronic hand irritation) or care homes for the elderly.

Outcomes assessed in the review
Inclusion criteria for outcomes were not defined. The included studies evaluated several outcomes to define the effectiveness of treatment and prevention strategies.

How were decisions on the relevance of primary studies made?
Two reviewers independently determined the eligibility of the retrieved studies; any disagreements were resolved by discussion with a third reviewer.

Assessment of study quality
The criteria used to assess the validity of the included studies were: control for confounders, study design (blinding of the assessor), comparability of groups, clear description of interventions and outcome measures, and consideration of clinical and non-clinical outcomes. Full details were reported. Studies were classified as 'good', 'fair' or 'poor'. Two reviewers independently determined the validity of the included studies.
Data extraction
Two reviewers independently abstracted data from the included studies. Data were only extracted for studies considered to be good or fair quality. Only bibliographic details were provided for those studies considered to be poor quality. Data were extracted according to outcome, results and p-value, as reported in the individual studies.

Methods of synthesis
How were the studies combined?
Studies were summarised separately for ICD and ACD, treatment and prevention, and grouped by type of intervention.

How were differences between studies investigated?
Differences between the studies were apparent from the tabulated results.

Results of the review
Forty-nine studies met the inclusion criteria: 28 studies (n=760) were considered to be good or fair quality and 21 studies were considered to be poor quality.

Prevention of ICD.
Several good-quality studies found that certain barrier creams (2 studies), moisturising creams (2 studies) and fabric softeners (1 study) were effective in the prevention of ICD. One good-quality study found that barrier cream was worse than a vehicle control. Several fair-quality studies found that certain moisturisers (4 studies), barrier creams (2 studies) and the use of cotton glove liners (1 study) were effective in the short-term prevention of ICD. Educational interventions (2 studies) provided less promising evidence.

Treatment of ICD.
Four studies (3 good quality and 1 fair quality) found that lipid-rich moisturisers were effective in the short-term treatment of ICD. One fair-quality study found application of moisturiser to dry hands prior to donning gloves was associated with less visual dryness compared with the control, but no difference in erythema. None of the included studies reported on quality of life or return to work.

Prevention of ACD.
No good-quality studies were identified that evaluated the prevention of ACD. Five fair-quality studies evaluated different interventions, and found evidence to support the use of topical skin protectant and quaternium-18-bentonite for rhus dermatitis, and diethylenetriamine pentaacetic acid for nickel, chrome and copper dermatitis. Evidence from fair-quality studies suggested pentoxifylline was not effective.

Treatment of ACD.
Four good-quality studies and one fair-quality study evaluated various moderate-to-potent steroids and showed them to be effective in the treatment of ACD. No study evaluated quality of life or return to work.

Addition details on the quality assessment and results of individual studies can be found in the online supplement available on the Journal of the American Academy of Dermatology website (accessed July 2007; note, a subscription is required to access this information).

Authors' conclusions
There are a limited number of interventions that are effective in the prevention and treatment of ICD and ACD. However, well-controlled studies with blinded outcome assessment are needed, particularly for the prevention of ACD.

CRD commentary
The review question was defined by broad inclusion criteria for the population, intervention and study design; outcome measures were not defined. Several relevant sources were searched for relevant studies, although limiting the search to English language publications would have introduced language bias. Methods were used to minimise reviewer error and bias in the study selection and data extraction processes. Validity was assessed using some relevant criteria, although little consideration was given to the process of randomisation and blinding was limited to that of the outcome assessor only.

Most of the included studies were small and individual results were not presented. The details presented highlight considerable variation across the included studies, thus supporting the decision to combine them in a narrative. In summary, this review may have overstated some of the available evidence, although the conclusion is appropriately cautious and recommendations for future research are supported.

Implications of the review for practice and research
Practice: The authors did not state any implications for practice.

Research: The authors stated some priorities for future research. Specifically, studies are needed: to address the effectiveness of preventive measures for ACD, in particular general applicable methods rather than allergen-specific ways to prevent ACD; to evaluate treatment for chronic ACD and ICD; to evaluate treatment and prevention in the real-world setting; to evaluate return-to-work as an outcome measure; to evaluate non-steroidal products to treat ACD; and to evaluate educational interventions.

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Bibliographic details

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Other publications of related interest
This additional published commentary may also be of interest. Solberg SM. Review: some barrier creams and moisturisers are effective for irritant contact dermititis; steroids are effective for allergic contact dermatitis. Evid Based Nurs 2006;9:74.

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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.