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[Intervention Review]

Topical rubefacients for acute and chronic pain in adults

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ABSTRACT

Background

Rubefacients (containing salicylates or nicotinamides) cause irritation of the skin, and are believed to relieve various musculoskeletal pains. They are available on prescription, and are common components in over-the-counter remedies. A non-Cochrane review in 2004 found limited evidence for efficacy.

Objectives

To review current evidence for efficacy and safety of topically applied rubefacients in acute and chronic painful musculoskeletal conditions in adults.

Search methods

Cochrane CENTRAL, MEDLINE, EMBASE, the Oxford Pain Relief Database, and reference lists of articles were searched; last search December 2008.

Selection criteria

Randomised, double blind, placebo or active controlled clinical trials of topical rubefacient for musculoskeletal pain in adults, with at least 10 participants per treatment arm, and reporting outcomes at close to 7 (minimum 3, maximum 10) days for acute conditions and 14 (minimum 7) days or longer for chronic conditions.

Data collection and analysis

Two review authors independently assessed trials for inclusion and quality, and extracted data. Relative benefit or risk and number needed to treat to benefit or harm (NNT or NNH) were calculated with 95% confidence intervals (CI). Acute and chronic conditions were analysed separately.

Main results

Six placebo and one active controlled studies (560 and 137 participants) in acute pain, and seven placebo and two active controlled studies (489 and 90 participants) in chronic pain were included. All used topical salicylates. The evidence in acute conditions was not robust; using only better quality, valid studies, there was no difference between topical rubefacient and topical control, though overall, including lower quality studies, the NNT for clinical success compared with placebo was 3.2 (95% CI: 2.4 to 4.9). In chronic conditions the NNT was 6.2 (95% CI: 4.0 to 13) compared with topical placebo. Adverse events and withdrawals occurred more often with rubefacients than placebo, but analyses were sensitive to inclusion of individual studies, so not robust. There were insufficient data to draw conclusions against active controls.

Authors' conclusions

The evidence does not support the use of topical rubefacients containing salicylates for acute injuries, and suggests that in chronic conditions their efficacy compares poorly with topical non-steroidal antiinflammatory drugs (NSAIDs). Topical salicylates seem to be relatively well tolerated in the short-term, based on limited data. There is no evidence at all for topical rubefacients with other components.

PLAIN LANGUAGE SUMMARY**Topical rubefacients for acute and chronic musculoskeletal pain in adults**

Rubefacients cause irritation and reddening of the skin, due to increased blood flow. They are believed to relieve pain in various musculoskeletal conditions, and are available on prescription and in over-the-counter remedies. This review found evidence that was limited by the quality, validity and size of the available studies, particularly for studies in acute pain conditions like strains and sprains, where there was inadequate information to support the use of rubefacients. In chronic pain conditions such as osteoarthritis the evidence was more robust, but rubefacients appear to provide useful levels of pain relief in one in six individuals over and above those who also responded to placebo. This compares poorly with topical NSAIDs where substantial amounts of good quality evidence indicate that one in every three individuals treated will experience useful levels of pain relief over and above those who also responded to placebo.