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Patching for corneal abrasion (Review)

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[Intervention Review]

Patching for corneal abrasion

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ABSTRACT

Background

Published audits have demonstrated that corneal abrasions are a common presenting eye complaint. Eye patches are often recommended for treating corneal abrasions despite the lack of evidence for their use. This systematic review was conducted to determine the effects of the eye patch when used to treat corneal abrasions.

Objectives

The objective of this review was to assess the effects of patching for corneal abrasion on healing and pain relief.

Search methods

We searched CENTRAL (which contains the Cochrane Eyes and Vision Trials Register) (2016, Issue 4), Ovid MEDLINE, Ovid MEDLINE In-Process and Other Non-Indexed Citations, Ovid MEDLINE Daily, Ovid OLDMEDLINE (January 1946 to May 2016), EMBASE (January 1980 to May 2016), Latin American and Caribbean Health Sciences Literature Database (LILACS) (January 1982 to May 2016), System for Information on Grey Literature in Europe (OpenGrey) (January 1995 to May 2016), the ISRCTN registry (www.isrctn.com/editAdvancedSearch), ClinicalTrials.gov (www.clinicaltrials.gov) and the World Health Organization (WHO) International Clinical Trials Registry Platform (ICTRP) (www.who.int/ictrp/search/en). We did not use any date or language restrictions in the electronic searches for trials. We last searched the electronic databases on 9 May 2016. We also searched the reference lists of included studies, unpublished 'grey' literature and conference proceedings and contacted pharmaceutical companies for details of unpublished trials.

Selection criteria

We included randomised and quasi-randomised controlled trials that compared patching the eye with no patching to treat simple corneal abrasions.

Data collection and analysis

Two authors independently assessed the risk of bias and extracted data. Investigators were contacted for further information regarding the quality of trials. The primary outcome was healing at 24, 48 and 72 hours while secondary outcomes included measures of pain, quality of life and adverse effects. We graded the certainty of the evidence using GRADE.

Main results

We included 12 trials which randomised a total of 1080 participants in the review. Four trials were conducted in the United Kingdom, another four in the United States of America, two in Canada, one in Brazil and one in Switzerland. Seven trials were at high risk of bias in one or more domains and one trial was judged to be low risk of bias in all domains. The rest were a combination of low risk or unclear.

People receiving a patch may be less likely to have a healed corneal abrasion after 24 hours compared to those not receiving a patch (risk ratio (RR) 0.89, 95% confidence interval (CI) 0.79 to 1.00, 7 trials, 531 participants, low certainty evidence). Similar numbers of people in the patch and no-patch groups were healed by 48 hours (RR 0.97, 95% CI 0.91 to 1.02, 6 trials, 497 participants, moderate certainty evidence) and 72 hours (RR 1.01, 95% CI 0.97 to 1.05, 4 trials, 430 participants, moderate certainty evidence). Participants receiving a patch took slightly longer to heal but the difference was small and probably unimportant (mean difference (MD) 0.14 days longer, 95% CI 0 to 0.27 days longer, 6 trials, 642 participants, moderate certainty evidence).

Ten trials reported pain scores. Most studies reported pain on a visual analogue scale (VAS). It was not possible to pool the data because it was skewed. In general, similar pain ratings were seen between patch and no-patch groups. Data from two trials reporting presence or absence of pain at 24 hours was inconclusive. There was a higher risk of reported pain in the patch group but wide confidence intervals compatible with higher or lower risk of pain (RR 1.51, 95% CI 0.86 to 2.65, 2 trials, 193 participants, low certainty evidence). Five trials compared analgesic use between the patch and no-patch groups. Data from three of these trials could be combined and suggested similar analgesic use in the patch and no-patch groups but with some uncertainty (RR 0.95, 95% CI 0.69 to 1.32, 256 participants, low certainty evidence). Frequently reported symptoms included photophobia, lacrimation, foreign body sensation and blurred vision but there was little evidence to suggest any difference in these symptoms in people with or without a patch.

Activities of daily living (ADL) were assessed in one study involving children. There was little difference in ADL with the exception of walking which was reported to be more difficult with a patch on: VAS 1.7 cm (SD 2.1) versus 0.3 cm (SD 0.7).

Complication rates were low across studies and there is uncertainty about the relative effects of patching or not patching with respect to these (RR 3.24, 95% CI 0.87 to 12.05, 8 trials, 660 participants, low certainty evidence). Three trials reporting rates of compliance to treatment found that 22% of participants did not have their eye patches during follow-up. No-patch groups generally received more adjuvant treatment with antibiotics or cycloplegics, or both, than the patch group. There were limited data on the effect of patching on abrasions greater than 10mm² in size.

Authors' conclusions

Trials included in this review suggest that treating simple corneal abrasions with a patch may not improve healing or reduce pain. It must be noted that, in these trials, participants who did not receive a patch were more likely to receive additional treatment, for example with antibiotics. Overall we judged the certainty of evidence to be moderate to low. Further research should focus on designing and implementing better quality trials and examining the effectiveness of patching for large abrasions.

PLAIN LANGUAGE SUMMARY

Eye patches for corneal abrasion

What is the aim of this review?

The aim of this Cochrane Review was to find out what effect using an eye patch for corneal abrasions has on healing and pain relief compared with not patching. Cochrane researchers collected and analysed all relevant studies to answer this question and found 12 studies.

Key messages

Patching probably does not speed up healing and may not have an important effect on pain relief. None of the studies provided information on the effect of patching on larger abrasions.

What was studied in the review?

The cornea is the transparent outer layer of the eye. Corneal abrasions can result from scratches or superficial damage to the cornea. These are common problems which can be very painful. A common treatment option is to place a patch over the eye. This may have an impact on how long it takes for the abrasion to heal. It may also provide pain relief.

What are the main results of the review?

The review authors found 12 relevant studies. 6 were from North America, 5 from Europe, and 1 from South America (Brazil). These studies compared the use of eye patches with no patching.

People receiving a patch may be less likely to have a healed corneal abrasion after 24 hours compared with people not receiving a patch (low certainty evidence). Using eye patches probably makes little or no difference to the number of people whose abrasion heals after 48 and 72 hours (moderate certainty evidence).

Corneal abrasions in people receiving patches probably take slightly longer to heal than in people not receiving patches but the difference is small and probably unimportant (moderate certainty evidence).

Using eye patches may lead to more pain at 24 hours (low certainty evidence). However, the range where the actual effect may be shows that eye patches may lead to more pain, but may also lead to less pain.

People with corneal abrasions frequently experience sensitivity to light, watery eyes, a foreign body sensation and blurred vision. There was little evidence to suggest any difference in these symptoms in people with or without a patch.

There were limited data available on quality of life, visual acuity and adverse effects.

How up-to-date is this review?

The review authors searched for studies that had been published up to 9 May 2016.