How effective are treatments other than antibiotics for acute sore throat?

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Authors’ objectives
To carry out a systematic review to estimate the benefits of treatments other than antibiotics for acute sore throat; in particular, the differences between the patients’ perception of sore throat-related pain for non-antibiotic interventions and controls.

Searching
The Cochrane Controlled Trials Register and MEDLINE were searched from 1966 onwards using the keywords 'tonsillitis', 'pharyngitis' or 'sore throat'. MEDLINE was also searched using 'randomised controlled trial', 'drug therapy', 'therapeutic use' or 'random'. No language restriction was imposed.

Study selection
Study designs of evaluations included in the review
Randomised controlled trials were eligible for inclusion. The included studies were double-blind or single-blind, and were apparently placebo-controlled although this was not stated explicitly.

Specific interventions included in the review
Studies of any non-antibiotic intervention were eligible for inclusion. The included studies examined the following treatments: non-steroidal anti-inflammatory drugs (NSAIDs) such as aspirin, ibuprofen and niflumic acid; aspirin plus caffeine; NSAIDs (tiaprofenic acid, morniflumate) plus antibiotics; paracetamol; corticosteroid (dexamethasone) plus antibiotics; benzydamine hydrochloride; and greater attention to patients. Prevention interventions included influenza vaccine, pneumococcal vaccine and super-colonisation with alpha-streptococcal bacteria.

Participants included in the review
Studies in adults and children with acute sore throat were eligible for inclusion, although the inclusion criteria were not explicit. The definitions of illness in the included studies were: acute sore throat with defined severity; upper respiratory infection with acute sore throat; severe sore throat; acute pharyngitis and/or tonsillitis, including a sore throat being treated with penicillin as pharyngitis or tonsillitis; and confirmed streptococcal sore throat. Definitions of acute were at least 4 hours, less than 24 hours, less than 48 hours, onset within 4 days, and less than 5 days.

Outcomes assessed in the review
The outcome measures for treatment were limited to patient-centred sore throat symptoms. The outcomes in the included studies were measured at different times: less than 24 hours, after 48 hours of treatment, and time to complete lack of pain. The trials of prophylactic treatments used follow-up times of up to 2 years, and assessed the prevention of episodes or recurrences.

How were decisions on the relevance of primary studies made?
The authors obtained the full-text of any articles where the abstract indicated a controlled trial of any non-antibiotic intervention.

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

Assessment of study quality
The authors do not state that they assessed quality, although they noted whether the studies were single- or double-blind.

Data extraction
The authors do not state how the data were extracted for the review, or how many of the reviewers performed the data extraction.

The following data were extracted for each included study: author and year; nature of active treatment(s); definition of illness; characteristics of the enrolled patients; setting and country; blinding; the number of patients in each treatment group; the relative treatment effect compared with the control; and levels of significance (P-values).

**Methods of synthesis**

**How were the studies combined?**

A narrative summary was presented because the heterogeneous nature of the interventions precluded a quantitative meta-analysis. The efficacy was defined as the percentage change in symptom score in the intervention group, relative to placebo, at the reference time. The authors attempted to score each symptom on the same scale. The reference time was any time used in the trial, although where possible, the authors used day 3 as the reference time to enable comparison with the data from antibiotic trials.

**How were differences between studies investigated?**

Differences between the studies were presented in the tables and discussed briefly in the text. Studies were divided into two groups: those that tested short-acting interventions (24 hours or less) and those that measured outcomes 24 hours after starting treatment.

**Results of the review**

Twenty-two trials reported in 17 papers were included. In total, there were 2,817 participants: 1,509 in the treatment groups and 1,308 in the controls.

The efficacy of non-antibiotic interventions for sore throat ranged from no effect to 93%. Ibuprofen appeared to have immediate efficacy, reducing throat pain in adults by 32 to 80% relative to placebo after 2 to 4 hours, and by 70% at 6 hours (2 trials, n=109). Ibuprofen had lower efficacy in children: 25% after 2 hours (1 trial, n=78), although after 2 days there was a 56% reduction in children still with a sore throat (1 trial, n=153).

Morniflumate suppositories (plus antibiotics) in children were no better than placebo at day 3, although there was a 34% reduction in pharyngeal pain after 4 days (1 trial, n=101).

Better doctor-patient communication, in addition to prescribing antibiotics, improved symptoms by day 3. This was particularly the case in patients who had a positive culture for beta-haemolytic streptococci (1 trial, n=100 adults).

Vaccinations against influenza (1 trial with 846 adults) and pneumococcus (1 trial with 405 children) both showed significant reductions (around 25 and 18%, respectively) in the number of future episodes of acute sore throat.

Spraying the throat with alpha-streptococci appeared to reduce sore throat recurrences in 2 trials (n=148; study population comprised children and adults).

Publication bias may have exaggerated the benefits.

**Authors' conclusions**

Effective short-term (less than 24 hours), alternative treatments to antibiotics for sore throat included steroids, NSAIDs, caffeine, and paracetamol. Longer-term (more than 24 hours) effective treatments included paracetamol, NSAIDs, super-colonisation with benign bacteria, better doctor-patient communication, and vaccination against influenza and pneumococcus.

**CRD commentary**

Some aspects of the review question were not stated clearly. In addition, there was insufficient information on the inclusion and exclusion criteria, and the review process itself, to fully assess its quality. It was unclear until the results
section that both trials aimed at the prevention of sore throat and those aimed at symptomatic relief were included. A clear statement of what the intervention was compared with, and a definition of the chosen outcome, patient-centred sore throat symptoms, would have been helpful.

The search strategy used appropriate sources of randomised clinical trials and was not limited to English language articles, although there was a bias towards published studies. The included studies were presented in clear tables, although there were some discrepancies in the numerical data presented within the tables, and between the tables and the text. There appears to have been no assessment of the quality of the included trials, other than noting whether they were single- or double-blind. It is, therefore, possible that treatment effects were exaggerated in those trials of poorer quality.

The authors' attempt to score each symptom on the same scale across trials was not presented in sufficient detail for the reader to judge how appropriate this was. A narrative synthesis was appropriate considering the variety of interventions and outcome time-points across the included studies. The majority of the data presented pertained to NSAIDS, so the authors' conclusion that all interventions tested in the included studies were effective may not be balanced; in particular, there were few data on interventions such as steroids and caffeine. In addition, a more cautious interpretation may be required where the treatments were tested in addition to antibiotics.

Implications of the review for practice and research
Practice: The authors state that we [sic] should prepare to change our clinical behaviour by choosing these effective alternative treatments ahead of less effective ones. They state that existing data suggest that antibiotics may be among the least effective treatments tested for symptom relief in acute sore throat (see Other Publications Of Related Interest).

Research: The authors state that treatments other than antibiotics should be further investigated as potential first-line management options for acute sore throat. Future studies should be conducted with particular respect to the efficacy, safety and side-effects. Since some of the most effective alternative treatments were not tested for more than a few hours, and some alternatives were tested in addition to antibiotics, further exploration seems indicated.

Bibliographic details
Thomas M, Del Mar C, Glasziou P. How effective are treatments other than antibiotics for acute sore throat? British Journal of General Practice 2000; 50: 817-820

PubMedID
11127175

Other publications of related interest

These additional published commentaries may also be of interest. Little P. Review: some non-antibiotic treatments are effective for relieving acute sore throat. Evid Based Med 2001;6:82. Lebeau S, Goodwin S. Review: NSAIDs, paracetamol, and analgesic/anti-inflammatory oral rinse reduce sore throat symptoms. Evid Based Nurs 2001;4:47.

Indexing Status
Subject indexing assigned by NLM

MeSH
Acetaminophen /therapeutic use; Acute Disease; Adolescent; Adult; Aged; Aged, 80 and over; Analgesics, Non-Narcotic /therapeutic use; Anti-Inflammatory Agents, Non-Steroidal /therapeutic use; Child; Humans; Ibuprofen /therapeutic use; Influenza Vaccines /administration & dosage; Middle Aged; Patient Satisfaction; Pharyngitis /drug therapy /therapy; Physician-Patient Relations; Pneumococcal Vaccines /administration & dosage; Randomized Controlled Trials as Topic; Streptococcal Infections /complications; Treatment Outcome
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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.