Do delayed prescriptions reduce antibiotic use in respiratory tract infections: a systematic review
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CRD summary
This review compared delayed with immediate prescriptions for upper respiratory tract infections. The authors concluded that delayed prescription can reduce antibiotic use in this population. The review was well conducted and the conclusions are likely to be reliable.

Authors' objectives
To compare the effects of delayed with immediate prescriptions for upper respiratory tract infections (RTIs).

Searching
MEDLINE (from 1966 to April 2003), EMBASE and the Cochrane Controlled Trials Register were searched for studies published in any language; the search terms were stated. The authors of published controlled trials were contacted for details of unpublished studies.

Study selection
Study designs of evaluations included in the review
Controlled clinical trials were eligible for inclusion. Randomised controlled trials (RCTs) and before-and-after studies were included.

Specific interventions included in the review
Studies that compared delayed with immediate prescriptions were eligible for inclusion. The studies could be conducted in any general practice setting. In the included studies, the prescriptions were delayed for between 1 and 7 days and different methods for collecting prescriptions were used: patients returned to the physician's office to collect prescriptions, or patients were given the prescription at the time of consultation.

Participants included in the review
Studies of patients of any age with upper RTIs were eligible for inclusion. The participants in the included studies were children with otitis media, patients older than 4 years with a sore throat, patients older than 16 years with a cough, and patients of any age with the common cold.

Outcomes assessed in the review
The primary outcomes in the review were the use or filling of prescriptions, and side-effects. The secondary outcomes were satisfaction with the consultation, the patients’ report that the doctor had dealt with worries, belief that antibiotics were effective, and belief that antibiotics can legitimate an illness to others.

How were decisions on the relevance of primary studies made?
Two reviewers independently selected the studies and resolved any disagreements through discussion.

Assessment of study quality
Studies were assessed for the quality of randomisation, allocation concealment, cointerventions, losses to follow-up (intention-to-treat analysis) and level of blinding. The quality of RCTs was assessed and scored using the Jadad scale. Two reviewers independently assessed validity and resolved any disagreements through discussion.

Data extraction
Two reviewers independently extracted the data and resolved any disagreements through discussion. The extracted data included characteristics of the participants and interventions, barriers in addition to delayed prescription, and results. Where necessary, additional information was obtained from the authors of the primary studies. For each study, the relative risk (RR) and 95% confidence interval (CI) was calculated for each outcome of interest.

Methods of synthesis
How were the studies combined?
Significant heterogeneity was detected, which precluded a meta-analysis. The studies were therefore combined in a narrative. The possibility of publication bias was explored using a funnel plot of the RCTs.

How were differences between studies investigated?
Differences were discussed according to the method of prescription collection and the study design. The range of RRs was calculated for each of these groups of studies. Heterogeneity was assessed, but the tests used were not described.

Results of the review
Four RCTs (n=1,084) and one controlled before-and-after study (n=1,979) were included.

All 4 RCTs scored more than three on the Jadad scale and used adequate methods of allocation concealment. Two RCTs described an adequate method of randomisation. All 4 RCTs reported using intention-to-treat analysis, but three did not describe how they handled missing data. The rates of follow-up ranged from 78 to 95% across all studies.

Reduction in prescriptions used or collected: all studies showed that delayed prescription statistically significantly reduced antibiotic use or collection compared with control; the RR ranged from 0.25 (95% CI: 0.19, 0.34) to 0.77 (95% CI: 0.73, 0.81). In the 3 studies in which patients returned to the physician's office to collect prescriptions, the RR ranged from 0.25 (95% CI: 0.19, 0.34) to 0.45 (95% CI: 0.36, 0.56). In the 2 studies in which patients were given the prescription at the time of consultation, the RRs were 0.54 (95% CI: 0.41, 0.7) and 0.77 (95% CI: 0.73, 0.81).

The RRs in 2 studies of children with otitis media differed: the RR was 0.25 for the RCT and 0.77 for the before-and-after study.

Symptoms and signs: one of the 4 studies reported a decrease in symptoms, while the other 3 RCTs found an increase in symptoms in the delayed prescription group. The results were also reported for other specific signs and symptoms.

Satisfactions with the consultation: the results were inconsistent. Two of the 4 RCTs found significantly reduced patient satisfaction with the consultation where delayed prescriptions were given. Other results were also reported.

Beliefs about antibiotics: two of the 3 studies reported a significant reduction in the belief that antibiotics were effective in the delayed group compared with the immediate prescription group.

Cointerventions: the results differed. One study found no significant difference in paracetamol use between treatment groups, while another study reported higher use in the delayed prescription group.

The funnel plot showed no evidence of publication bias, but it was difficult to assess given the small number of studies.

Authors' conclusions
The consistent findings that delayed prescription reduced antibiotic use suggest that delayed prescription is an effective method of reducing antibiotic use for acute respiratory infections.

CRD commentary
The review question was clear in terms of the study design, intervention and participants, and the primary outcome in the review was defined. Several relevant sources were searched and attempts were made to minimise language and publication bias. Two reviewers independently selected the studies, assessed validity and extracted the data, which
reduces the potential for bias and errors. Validity was assessed using specified established criteria and the results were reported. Relevant data were tabulated. The narrative synthesis was appropriate given the heterogeneity among the studies; potential causes of heterogeneity were explored. The evidence presented appears to support the authors’ conclusions.

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

Research: The authors stated that larger trials with longer follow-up are required to assess complications with delayed treatment. They also stated that the effect of delayed prescriptions should be assessed for other conditions (e.g. sinusitis and acute bronchitis), and that research is needed to identify higher risk patients and those patients in whom antibiotics may be effective.

Bibliographic details

PubMedID
14702908

Other publications of related interest

Indexing Status
Subject indexing assigned by NLM

MeSH
Anti-Bacterial Agents /administration & dosage; Drug Prescriptions /statistics & numerical data; Family Practice /standards; Humans; Practice Patterns, Physicians’; Randomized Controlled Trials as Topic; Respiratory Tract Infections /drug therapy; Time Factors

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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.