
Antibiotic treatment for acute 'uncomplicated' or 'primary' pyelonephritis: a systematic, 'semantic revision'

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CRD summary

This review assessed therapeutic approaches to acute uncomplicated or primary pyelonephritis, concluding that there is a tendency for two weeks of mainly oral antibiotic therapy for acute uncomplicated pyelonephritis. A limited data synthesis, significant heterogeneity and a failure to assess study quality, suggest that the conclusions of the review should be treated with caution.

Authors' objectives

To review the therapeutic approaches to acute uncomplicated or primary pyelonephritis.

Searching

MEDLINE, EMBASE, Cochrane Central Register of Controlled Trials, Cochrane Database of Systematic Reviews, CINAHL, DARE and the American College of Physicians Journal Club were searched from 1994 to 2004. Search terms were reported. No language restrictions were applied. Additional studies were sought through screening the reference lists of retrieved papers, main clinical texts and relevant secondary studies, such as guidelines, reviews and systematic reviews.

Study selection

Randomised controlled trials (RCTs) or clinical trials dealing with the treatment of uncomplicated or primary acute pyelonephritis were eligible for inclusion. Studies were excluded if they dealt with pyelonephritis during pregnancy.

Included trials were in both adults and children, within which the duration, route and setting of therapy differed. The included trials evaluated various regimens of drugs. Duration of therapy for adults ranged from four to 20 days. Treatment duration in children averaged, or exceeded, two weeks in just under half of the studies. The review addressed clinical success, microbiological success, outcome of failures and scars (as defined in the primary trials). Trials were undertaken in Europe, Turkey, USA, Asia, Australia and New Zealand, plus studies from different continents.

Two reviewers selected studies based on the stated inclusion criteria with discrepancies resolved through discussion.

Assessment of study quality

The authors did not state that they assessed validity.

Data extraction

Two reviewers extracted the data independently.

Methods of synthesis

A narrative synthesis was provided with differences in study characteristics tabulated or discussed in the text. The synthesis was structured using the following study characteristics: diagnostic definitions and enrolment criteria; therapeutic protocols; and outcomes.

Results of the review

Thirty-six RCTs were included, 22 specific to adults (n=2,409) and 14 specific to children (n=1,980).

Six of the children's trials provided a prevalence of scars ranging from 13.6 to 100%. The outcome of the 0 to 25% therapeutic failures was specified in 14 of the 36 trials.

There was a high degree of clinical and methodological heterogeneity across studies.

Authors' conclusions

For acute uncomplicated pyelonephritis the tendency is for two weeks of mainly oral antibiotic therapy. For adults there is no discrimination among different upper urinary tract infections and there is no data on renal scarring.

CRD commentary

The review addressed a clear question and undertook an extensive search for recent studies with no language restrictions placed on the study selection. Data extraction and study selection were undertaken in duplicate to minimise bias. The authors made no attempt to undertake a quality assessment of the included trials, the majority of which contained small sample sizes. There was a high degree of heterogeneity between trials and the authors undertook a limited data synthesis. These shortcomings, plus the failure to assess quality, imply that the conclusions of the review should be treated with caution.

Implications of the review for practice and research

Practice: The authors did not state implications for practice.

Research: The authors stated that further studies are required to assess the prevalence and long-term effect of kidney scars. Attention should also focus on the population of patients that are usually excluded from trials.

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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.