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[Intervention Review]

# Modes of administration of antibiotics for symptomatic severe urinary tract infections

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## ABSTRACT

### Background

Urinary tract infection (UTI), worldwide, is a major source of disease in children and adults. As it may have long-term consequences such as kidney failure and hypertension, it is important to treat patients with UTI adequately. Although standard management of severe UTI usually means intravenous (IV) therapy, at least initially, there are studies showing that oral therapy may also be effective.

### Objectives

To assess whether the mode of administration of antibiotic therapy for severe UTI has an effect on cure rate, reinfection rate and kidney scarring.

### Search methods

The Cochrane Renal Group's specialised register, the Cochrane Central Register of Controlled Trials (CENTRAL, in *The Cochrane Library*), MEDLINE and EMBASE were searched. No language restriction was applied. Reference lists of relevant articles and reviews were checked for additional studies and authors of relevant articles/abstracts were contacted for further information.

### Selection criteria

All randomised controlled trials (RCTs) comparing different modes of antibiotic application for patients with severe UTI (children and adults) were considered.

### Data collection and analysis

Study quality was assessed and data extracted. Statistical analyses were performed using the random effects model and the results expressed as risk ratio (RR) for dichotomous outcomes or mean difference (MD) for continuous data with 95% confidence intervals (CI).

### Main results

Fifteen RCTs (1743 patients) were included. Studies compared oral versus parenteral treatment (1), oral versus switch treatment (initial intravenous (IV) or intramuscular (IM) therapy followed by oral therapy) (5), switch versus parenteral treatment (6) and single dose parenteral followed by oral therapy versus oral (1) or switch therapy (3). There was a variety of short-term and long-term outcomes, but no pooled outcomes showed significant differences. Most included studies were small though and there were few outcomes for combination in a meta-analysis.

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**Authors' conclusions**

There is no evidence suggesting that oral antibiotic therapy is less effective for treatment of severe UTI than parenteral or initial parenteral therapy. The results of this review suggest that the mode of application does not determine therapeutic success.

**PLAIN LANGUAGE SUMMARY****No evidence that oral antibiotic therapy is less effective for treating urinary tract infection than intravenous antibiotics**

Severe urinary tract infection (UTI) is a common infection in adults and children, causing acute disease with a variety of symptoms such as fever and flank pain. This may lead to kidney damage, kidney failure or hypertension. Standard therapy involves antibiotics given at least initially by injection. This review identified 15 studies (1743 participants). The results of this review suggest oral therapy is equally effective in treating UTI and preventing long-term damage. This might reduce costs but also inconvenience for the patient.