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Title

Oral versus intravenous antibiotics for the initial treatment of acute pyelonephritis in adults: a systematic review

Priority 1 (Research Category)

Acute and emergency care

Presenters

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Abstract

CONTEXT: Acute pyelonephritis is a common diagnosis in the primary care and emergency settings. The most recent international guidelines for the management of acute uncomplicated pyelonephritis in adults (2010) recommend treatment to be initiated with a single dose of intravenous (IV) ceftriaxone or an aminoglycoside when the prevalence of fluoroquinolone resistance is unknown or exceeds 10%. However, this was supported by limited data and treatment without IV antibiotics may offer potential advantages. These include minimizing resource utilization and decreasing the risk of complications associated with IV antibiotics such as diarrhea. OBJECTIVE: This systematic review aims to determine if oral antibiotic treatment is non-inferior to single dose IV followed by oral antibiotic treatment in terms of efficacy and complications in adults presenting to the emergency department (ED) with acute pyelonephritis. STUDY DESIGN AND ANALYSIS: Five electronic research databases were searched to identify randomized controlled trials (RCT) and non-randomized studies of interventions. Two independent reviewers performed study selection, data extraction and quality assessment. Disagreements were resolved by a third independent reviewer. Due to methodological diversity and risk of bias in the included studies, a narrative synthesis of results was performed without a meta-analysis. The review protocol was registered to PROSPERO (CRD42024503968) prior to beginning the study selection process. SETTING: Studies conducted in the ED, in urgent care centers or in outpatient clinics were included. POPULATION: Studies had to include adults (≥ 18 years old) with a clinical diagnosis of acute pyelonephritis. INTERVENTION: N/A. OUTCOME MEASURES: The primary outcome measures were the proportion of clinical and microbiological cure at end of treatment. RESULTS: The search yielded 2,478 records, with 813 duplicates. After screening, 31 full texts were reviewed, and 3 studies were included. None showed a difference in clinical outcomes between both treatment approaches, though the studies were methodologically diverse and not all designed to detect such differences.

CONCLUSIONS: This systematic review identified a limited number of studies investigating the efficacy of oral versus single dose IV followed by oral antibiotic treatment for acute pyelonephritis in adults. More research is needed to guide emergency physicians and other primary care providers in the management of this disease.

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