TITLE: **Development of Antibiotic Resistance to Norfloxacin in the Treatment of Urinary Tract Infections: Clinical Evidence**

DATE: 5 February 2015

RESEARCH QUESTION

What is the clinical evidence on the development of antibiotic resistance to norfloxacin in the treatment of urinary tract infections (UTIs)?

KEY FINDINGS

One non-randomized study was identified regarding the development of antibiotic resistance to norfloxacin in the treatment of urinary tract infections.

METHODS

A limited literature search was conducted on key resources including PubMed, The Cochrane Library (2015, Issue 1), University of York Centre for Reviews and Dissemination (CRD) databases, Canadian and major international health technology agencies, as well as a focused Internet search. No filters were applied to limit the retrieval by study type. Where possible, retrieval was limited to the human population. The search was also limited to English language documents published between January 1, 2005 and January 30, 2015. Internet links were provided, where available.

SELECTION CRITERIA

One reviewer screened citations and selected studies based on the inclusion criteria presented in Table 1.

Table 1: Selection Criteria	
Population	Patients with UTIs
Intervention	Norfloxacin
Comparator	Other antibiotics (e.g., ciprofloxacin)
Outcomes	Development of antibiotic resistance
Study Designs	Health technology assessment, systematic reviews, meta-analyses, randomized controlled trials, non-randomized studies

UTI = urinary tract infection.

RESULTS

Rapid Response reports are organized so that the higher quality evidence is presented first. Therefore, health technology assessment reports, systematic reviews, and meta-analyses are presented first. These are followed by randomized controlled trials and non-randomized studies.

One non-randomized study was identified regarding the development of antibiotic resistance to norfloxacin in the treatment of urinary tract infections. No relevant health technology assessments, systematic reviews, meta-analyses, or randomized controlled trials were identified.

Additional references of potential interest are provided in the appendix.

Health Technology Assessments
No literature identified.

Systematic Reviews and Meta-analyses
No literature identified.

Randomized Controlled Trials
No literature identified.

Non-Randomized Studies

1. Alos JI, Serrano MG, Gomez-Garces JL, Perianes J. Antibiotic resistance of Escherichia coli from community-acquired urinary tract infections in relation to demographic and clinical data. Clin Microbiol Infect. 2005 Mar;11(3):199-203. PubMed: PM15715717

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APPENDIX – FURTHER INFORMATION:

Non-Randomized Studies

Population Level Resistance Over Time

2. Orrett FA, Davis GK. A comparison of antimicrobial susceptibility profile of urinary pathogens for the years, 1999 and 2003. West Indian Med J. 2006 Mar;55(2):95-9. PubMed: PM16921702

Alternate Outcome

3. Norinder BS, Norrby R, Palmgren AC, Hollenberg S, Eriksson U, Nord CE. Microflora changes with norfloxacin and pivmecillinam in women with recurrent urinary tract infection. Antimicrob Agents Chemother [Internet]. 2006 Apr [cited 2015 Feb 4];50(4):1528-30. Available from: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1426930 PubMed: PM16569875

Treatment Failure

4. Lee MT, Lee SH, Chang SS, Lee SH, Lee M, Fang CC, et al. Comparative effectiveness of different oral antibiotics regimens for treatment of urinary tract infection in outpatients: an analysis of national representative claims database. Medicine (Baltimore). 2014 Dec;93(28):e304. PubMed: PM25526477

5. Schneeberger C, Stolk RP, Devries JH, Schneeberger PM, Herings RM, Geerlings SE. Differences in the pattern of antibiotic prescription profile and recurrence rate for possible urinary tract infections in women with and without diabetes. Diabetes Care [Internet]. 2008 Jul [cited 2015 Feb 4];31(7):1380-5. Available from: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2453660 PubMed: PM18362200

6. Alexiou Z, Mouktaroudi M, Koratzanis G, Papadopoulos A, Kavatha D, Kanellakopoulou K, et al. The significance of compliance for the success of antimicrobial prophylaxis in recurrent lower urinary tract infections: the Greek experience. Int J Antimicrob Agents. 2007 Jul;30(1):40-3. PubMed: PM17459663

Modelling Study

7. Mahamat A, Lavigne JP, Fabbro-Peray P, Kinowski JM, Daures JP, Sotto A. Evolution of fluoroquinolone resistance among Escherichia coli urinary tract isolates from a French university hospital: application of the dynamic regression model. Clin Microbiol Infect. 2005 Apr;11(4):301-6. PubMed: PM15760427