INAHTA Briefs

Issue 2002/84

Title **New Fluoroquinolones in Community-Acquired Pneumonia: A Clinical and Economic Evaluation**

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Reference CCOHTA Technology Report, Issue 20, November 2001. ISBN 1-894620-14-3 (print); ISBN 1-894620-13-5 (online): http://www.ccohta.ca/ccohta_production/entry_e.html

Aim

- To critically review the efficacy and safety of new fluoroquinolones (FQs) for the empiric treatment of community-acquired pneumonia (CAP)
- To compare these drugs, both clinically and economically, with comparator antibiotics.

Conclusions and results

Of the 16 randomized controlled trials that met the selection criteria, 1 was of high quality, 9 of moderate quality, and 6 of low quality. Twelve of these trials compared orally administered FQs with other orally administered antibiotics used in the treatment of CAP. Eight of these reported intention-to-treat analyses (ITT). Three studies compared intravenous (IV) therapy, or IV with step-down to oral (IV to PO) FQ therapy, with another IV or IV oral antibiotic; in these studies, ITT analyses were not reported. One study compared two IV/oral FQs to each other; gatifloxacin and levofloxacin.

Analysis of the trials on an ITT basis indicates that the orally administered FQs offer no statistically significant additional clinical successes when compared to other antibiotics. The "evaluable subjects" analysis found FQs to be slightly more effective. Considering the limitations of the evidence, this study concludes that the new FQs are at least as effective as, and maybe slightly more effective than, comparative antibiotics for the empiric treatment of CAP. No overall differences in serious adverse effects were observed.

Due to significant limitations of the cost-effectiveness analysis (CEA), resulting from the limited evidence of any real difference between FQs and comparative antibiotics, the cost- minimization analysis (CMA) was considered the primary economic analysis. CMA indicates that the new FQs approved for use in Canada have a cost advantage over some alternative antibiotics, but this advantage is lost compared to the lower cost alternative antibiotics.

Recommendations

In light of relative similarities in costs and effects among treatment strategies, treatment decisions should consider additional factors such as regional pattern of bacterial resistance, adverse drug reaction profile, patient convenience, and potential for cross-resistance among FQs.

Methods

A systematic review and meta-analyses of randomized controlled trials was undertaken. Across all trials considered, the main outcome measures were both clinical success at the end of treatment and the number of subjects designated "clinically cured or improved" based on causative pathogen. Using meta-analyses, estimates of the differences in clinical success rates between FQs and comparative antibiotics were expressed as risk differences. A CMA and CEA were used to compare the cost-effectiveness of oral and IV/oral treatments from a provincial government payer perspective.

Further research/reviews required

To confirm a class effect for the new FQs, higher quality clinical trials comparing the FQs among themselves would be required.

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