

NEW DRUG EVALUATION

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MOXIFLOXACIN

Moxifloxacin is an oral quinolone antibacterial agent licensed for the treatment of acute exacerbations of chronic bronchitis, community acquired pneumonia and acute bacterial sinusitis. In clinical trials, moxifloxacin had similar efficacy to azithromycin, clarithromycin, amoxicillin, cefuroxime or levofloxacin. With the exception of levofloxacin, it has not been compared with other quinolones licensed in the UK. Common adverse effects include gastrointestinal disturbances, dizziness and headache. Moxifloxacin should only be prescribed on the basis of microbiological advice and it should be reserved for the treatment of patients in whom first line agents have been ineffective.

What is it?

Moxifloxacin (Avelox®, Bayer plc) is an oral quinolone antibacterial agent licensed for the treatment of acute exacerbations of chronic bronchitis (AECB), community acquired pneumonia (except severe cases) and acute bacterial sinusitis (adequately diagnosed). The recommended dose is 400 mg daily for 5-10 days for AECB or for 10 days for community acquired pneumonia (CAP), or for 7 days for acute bacterial sinusitis.¹

How effective is it?

Moxifloxacin has been shown to have activity against Gram-positive and Gram-negative organisms including penicillin and macrolide resistant pneumococci.¹

Acute exacerbations of chronic bronchitis

Five randomised, double-blind studies have compared the efficacy of moxifloxacin with that of other antibacterial agents for the treatment of AECB.²⁻⁶

In the first study, a 5 day course of moxifloxacin 400 mg daily (n=374) produced a similar overall clinical success rate at 7 days post treatment to a 7 day course of clarithromycin 500 mg twice daily (n=371) (80.8% vs 83%).² In the second study, treatment with moxifloxacin 400 mg daily for 5 (n=270) or 10 days (n=273) produced equivalent clinical success rates at 7-17 days post therapy to a 10 day course of clarithromycin 500 mg twice daily (n=263) (90% vs 92% vs 88%).³ In the third study, moxifloxacin 400 mg daily (n=237) or azithromycin (500 mg on day 1, then 250 mg daily) (n=250) for 5 days produced similar clinical cure rates at 14-21 days post treatment (86% vs 87%).⁴ Moxifloxacin 400 mg daily for 5 days (n=296) was associated with a similar clinical resolution rate to levofloxacin 500 mg daily for 7 days (n=298) at 7-21 days post therapy (92% vs 95%) in the fourth study.⁵ In the final study (published as an abstract only), moxifloxacin produced a similar clinical success rate to 'standard' treatment consisting of either amoxicillin, clarithromycin or cefuroxime.⁶

Community acquired pneumonia

The efficacy of moxifloxacin for the treatment of suspected CAP has been compared with that of other antibiotics in four double-blind, randomised studies.⁷⁻¹⁰

In the first study, 10 day courses of moxifloxacin 400 mg daily (n=224) or clarithromycin 500 mg twice daily (n=222) both produced clinical success rates at 3-5 days post treatment of 94% (results were only presented for the efficacy evaluable population).⁷ In the second study (n=473), the clinical resolution rates at 14-35 days post therapy were 93% for moxifloxacin 400 mg daily or clarithromycin 500 mg twice daily given for 10 days.⁸ Moxifloxacin 400 mg daily for 10 days (n=200) produced a clinical success rate of 86.5% at 3-5 days post therapy compared with 82.2% for amoxicillin 1 g three times daily for 10 days (n=208) in the third study.⁹ In the fourth study, patients received treatment for up to 14 days with moxifloxacin 400 mg daily (n=233) or 'standard' therapy consisting of either amoxicillin 1g three times daily, clarithromycin 500 mg twice daily or both these agents in combination (n=244). Clinical cure at 7-10 days post therapy was achieved by 94% of patients in both treatment groups.¹⁰

Acute bacterial sinusitis

Two randomised, double blind trials have compared moxifloxacin (400 mg daily) with cefuroxime (250 mg twice daily) in patients with acute bacterial sinusitis (ABS).^{11,12} In the first trial, clinical response rates at 7 days post treatment were similar for a 7 day course of moxifloxacin (n=242) or a 10 day course of cefuroxime (n=251) (89% vs 87%).¹¹ In the second trial, the clinical success rates at 7-21 days post therapy were both 90% for 10 day courses of moxifloxacin (n=263) or cefuroxime (n=274).¹²

How safe is it?

In a pooled analysis of all comparative trials (n=13,055), discontinuation rates due to adverse drug reactions were similar for moxifloxacin or the comparator antibiotic (2.7% vs 3.0%).¹³ The most common adverse drug reactions for moxifloxacin or the comparator drug were gastrointestinal disturbances (16.9% vs 13.7%), dizziness (2.6% vs 2.3%),

headache (1.6% vs 2%), dry mouth (1.0% vs 0.5%) abnormal liver function tests (0.9% vs 1.1%), taste perversion (0.8% vs 1.6%), and rash (0.7% vs 0.7%).¹³ Like other quinolones, moxifloxacin may rarely cause tendon damage.¹

Moxifloxacin has been shown to prolong the QTc interval by an average of 6 msec (\pm 26 msec) at therapeutic doses.¹ The relative risk of QT prolongation with the different quinolones has not been clearly established.

What other options are there?

First line antibacterial agents for AECB, uncomplicated CAP and ABS include amoxicillin, a tetracycline or a macrolide.^{14, 16} Co-amoxiclav is considered a second line agent for ABS or AECB.¹⁴ Ciprofloxacin is an option for ABS if first line agents fail.¹⁵ Levofloxacin has higher activity against pneumococci than ciprofloxacin and may be an alternative for the treatment

of CAP if first line agents are ineffective.^{14,16}

Local resistance patterns and prescribing policies should be taken into account when choosing an appropriate antibacterial agent.¹⁷

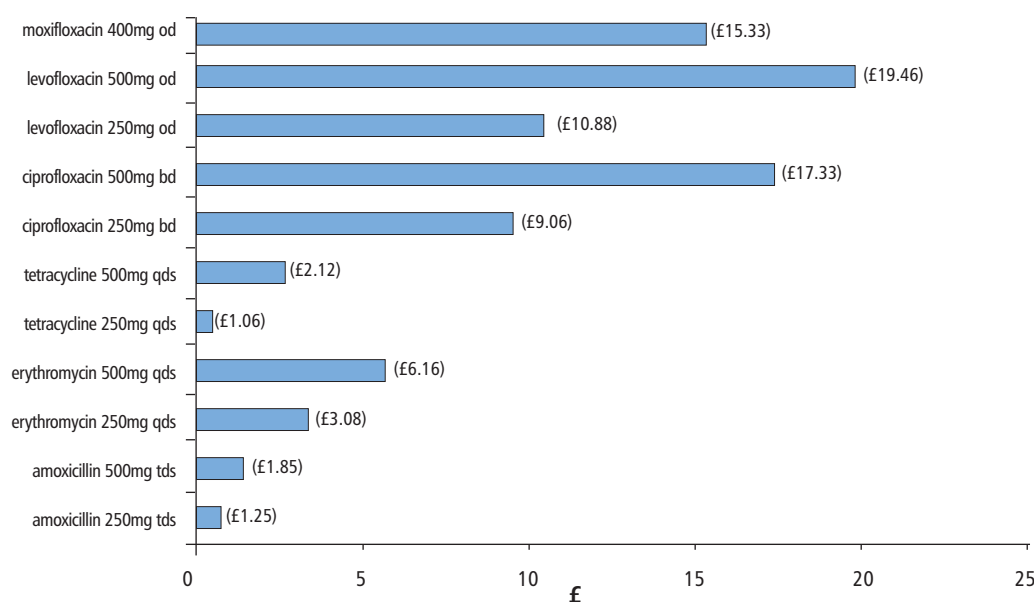
When should it be used?

Moxifloxacin has not been shown to offer any clear clinical advantages over established first line antibiotics. With the exception of levofloxacin, it has not been compared with other quinolones licensed in the UK.

To minimise the development of bacterial resistance and since there are less costly, equally effective alternatives available, quinolones should usually be reserved as second line agents. They should generally be prescribed only where sensitivities are known and following microbiological advice.¹⁸

How much does it cost?

Cost for 7 days treatment (prices from Drug Tariff/MIMS August 2003)



NB. Doses shown are for general comparison only and do not imply therapeutic equivalence.

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KEY RCT - randomised controlled trial, CT-controlled trial, O-open study, MA-meta analysis, R-review, U-unpublished, A- abstract, E-editorial