

Azithromycin was cost-effective for genital *Chlamydia trachomatis* infections

Magid D, Douglas JM Jr, Schwartz JS. Doxycycline compared with azithromycin for treating women with genital *Chlamydia trachomatis* infections: an incremental cost-effectiveness analysis. *Ann Intern Med.* 1996 Feb 15;124:389-99.

Objective

To determine the incremental cost-effectiveness of doxycycline therapy compared with single-dose azithromycin therapy in women with uncomplicated cervical *Chlamydia trachomatis* infection.

Design

Decision analysis in which the health outcomes, costs, and cost-effectiveness (from the perspective of the payer) of 2 provider-administered treatment strategies were compared.

Setting

United States.

Patients

2 hypothetical cohorts of 100 000 non-pregnant women of child-bearing age who had laboratory-confirmed, uncomplicated cervical chlamydial infections.

Intervention

One cohort was treated with oral doxycycline, 100 mg twice daily for 7 days. The other cohort was treated with azithromycin, 1 g in a sachet formulation administered in a single oral dose.

Main cost and outcome measures

Health outcomes, costs, and incremental cost-effectiveness were confined to direct medical costs. The probability estimates used in the model were obtained from a review of the literature and a survey of experts.

Main results

Using the best available probability estimates, azithromycin therapy resulted in fewer major and minor sequelae of *C. trachomatis* infection. Given the average costs of management of the sequelae, the azithromycin strategy cost U.S. \$39.51 per patient compared with U.S. \$69.07 per patient for the doxycycline strategy. The superiority of azithromycin therapy was insensitive to changes in the probability assumptions and the cost estimates. In univariate sensitivity analyses, azithromycin therapy prevented more major and minor complications but cost more than

doxycycline therapy when doxycycline effectiveness was > 93%. In a multivariate sensitivity analysis, 11 probability estimates were altered to maximise the cost-effectiveness of doxycycline therapy. The azithromycin strategy still resulted in fewer major and minor complications but was more costly, with an incremental cost-effectiveness of U.S. \$521 per additional major complication prevented. Even in this extreme case, however, if the antibiotic cost differential was < U.S. \$9.80, azithromycin was less expensive and more effective.

Conclusion

Azithromycin therapy was more cost-effective than doxycycline therapy in women with uncomplicated cervical chlamydial infections.

Source of funding: In part, Pfizer, Inc.

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Commentary

The model used in this analysis is based on the assumption that a proportion of women given a week of doxycycline treatment will not finish the therapy and will have persistent infection, which in 5% of these women leads to serious complications. This scenario was compared with complete compliance with azithromycin therapy given as a single, observed dose. The extra cost of azithromycin is then balanced against the cost of the complications (e.g., pelvic inflammatory disease [PID] and ectopic pregnancy) that would occur in those given doxycycline.

The model shows that at a cure rate of > 93%, doxycycline is more cost-effective than azithromycin. The level of compliance estimated for the model, however, gives a cure rate of 86%, which was calculated as follows: 70% of patients would

take 12 to 14 of the 14 tablets (96% cured); 20% would take 7 to 11 (80% cured); and the remainder would take < 7 tablets (40% cured). Therefore, to interpret this study for their own use, clinicians have to estimate compliance in their own patients. An important clinical point that the model assumed is that all women included in the study have proven uncomplicated chlamydial cervicitis. The authors stress that the results cannot be extrapolated to women with nonspecific genital infection or PID. Because these latter patients are usually managed in a similar way, clinicians may be tempted to make such an extrapolation.

Cost-effectiveness in the real world is not a simple issue. The cost of treating the initial infection and the cost of treating the complications often come from

different budgets, so a policy of adopting the more expensive antibiotic may be difficult to implement.

Budgetary issues aside, single-dose therapy has been used for treating gonorrhoea for decades. Patients with asymptomatic sexually transmitted diseases often have poor compliance, and the concept of single-dose therapy for chlamydia is attractive. This study was partly funded by the makers of azithromycin; nevertheless, the argument seems compelling enough to use azithromycin for patients who seem unlikely to finish their course of doxycycline.

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