

RESEARCH SUMMARY

Azithromycin – an alternative to penicillin?

Azithromycin and dentistry – a useful agent?

L. D. Addy and M. V. Martin *Br Dent J* 2004; 197: 141–143

Objectives

Azithromycin has recently replaced clindamycin oral suspension for prophylaxis of infective endocarditis (IE) in children. It is also currently recommended by the American Heart Association as an alternative to penicillin, along with clindamycin for prophylaxis of infective endocarditis in adults. The objectives of this paper were to firstly, review the current literature on the efficacy of azithromycin as a suitable prophylactic agent in the prevention of infective endocarditis; and secondly, to review its pharmacological properties as a suitable therapeutic agent in the management of odontogenic infections.

Design

A review of the literature.

Conclusions

The available evidence from animal models on infective endocarditis supports the efficacy of this drug as a prophylactic agent against oral streptococci. The pharmacological properties of this agent would make it a very promising therapeutic adjunct in the management of odontogenic infections. At present there are only a small number of studies available with valuable data on the efficacy of this relatively new drug. Further investigations comparing this compound with other commonly used adjuncts would be of great benefit.

IN BRIEF

- Azithromycin has replaced clindamycin oral suspension for prophylaxis against IE in children.
- Patient compliance with azithromycin should be good as it only needs to be taken once a day for 3 days.
- Animal models support the efficacy of azithromycin as a prophylactic agent.
- Azithromycin produces high dento-alveolar tissue concentrations which persist for 7–10 days.

COMMENT

The appropriate use of antimicrobial drugs by all healthcare workers, including dental surgeons, has been under scrutiny in recent years as a result of the increasing problem of drug resistance. Whilst such resistance has not proved a significant barrier to date in the management of odontogenic infections, the poor patient tolerance of erythromycin for those who are penicillin allergic can be problematic.

In this issue of the *BDJ*, the paper by Addy and Martin provides a very useful review of the potential value of azithromycin, a synthetic derivative of erythromycin, in dentistry. This agent has recently replaced clindamycin for the prophylaxis of infective endocarditis in children in the UK and is also recommended by the American Heart Association as an alternative to clindamycin for infective endocarditis prophylaxis in adults.

The paper explains the greatly enhanced pharmacokinetics of azithromycin over erythromycin, including its increased stability at acid pH, improved absorption which is unaffected by food, sustained high tissue levels and extensive penetration of cells. Interestingly, there is preferential uptake by phagocytic cells, leading to a high drug concentration at sites of infection. These pharmacokinetics are ideal for an agent to be used in prophylaxis of infective endocarditis and the paper describes a number of published animal studies supporting the efficacy of azithromycin in this role.

Other significant advantages of azithromycin over erythromycin for patients are the reduced incidence of gastrointestinal side-effects, and the fact that once daily, short duration dosing regimens are appropriate, thus increasing compliance.

The paper reports several studies of azithromycin in the management of odontogenic infections and periodontal diseases. Laboratory data indicate that azithromycin is bacteriostatic against a wide variety of oral organisms, including many anaerobes. However, the clinical trial data are limited and significant further work will be required before the true role of azithromycin in managing odontogenic infections becomes clear.

Whilst the drug clearly has a potential role in the management of patients who are penicillin allergic, it is unlikely to supplant penicillins, such as amoxicillin, in others. It is also important to be aware that azithromycin is currently an expensive drug, costing up to ten times more than a course of amoxicillin.

In summary, the authors provide a valuable review of an antimicrobial agent which is likely to assume a greater prominence in dentistry in the future. As with all antimicrobial agents, care to avoid unnecessary and inappropriate use will be important if its promise is to be realised in the long term.

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