

Distribution of antibiotic for eye disease linked to low death risk among Ethiopian children

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Children in Ethiopia who received the antibiotic azithromycin as a method for controlling the contagious eye disease trachoma had a lower odds of death compared to children who did not receive the antibiotic, according to a study in the September 2 issue of *JAMA*.

"The World Health Organization has recommended mass distribution and administration of oral azithromycin as part of efforts to control blinding trachoma. Such distribution has proven effective against the ocular strains of [Chlamydia trachomatis](#) that cause the disease at both the individual and village levels," the authors write. The treatment may also have unintended consequences, both harmful and beneficial, including the inducement of [antibiotic resistance](#). "Conversely, antibiotics may reduce both respiratory and gastrointestinal infections, and possibly reduce rates of malaria—all of which are major causes of death in children in trachoma-endemic areas such as rural Ethiopia."

Travis C. Porco, Ph.D., M.P.H., of the University of California, San Francisco, and colleagues examined the effect of oral azithromycin distribution for trachoma control on mortality among children ages 1 to 9 in Ethiopia. Forty-eight communities (known as subkebeles) were randomized into 1 of 3 treatment schedules (annual treatment of all residents [15,902 participants], biannual treatment of all residents [17,288 participants], or quarterly treatment of children only [14,716 participants]) or into 1 group for which treatment was delayed by 1 year

(control, 18,498 participants). Twelve subkebeles were randomized to each of the 4 schedules with all children in each of the three communities being eligible for treatment. The trial was conducted in a field setting in rural Ethiopia, May 2006 to May 2007. Antibiotic coverage rates exceeded 81 percent among children age 1 to 9 years at all visits.

A total of 82 deaths were recorded for children age 1 to 9 years at the 2007 census. Comparing the mortality rates between the two groups, the researchers found that the children in the treatment group had a 49 percent lower odds of death compared with children in the control group.

"It is not clear precisely why azithromycin decreased mortality, although infectious diseases are the leading cause of death in Ethiopian children, in particular pneumonia (28 percent), diarrhea (20 percent), and malaria (20 percent). In Ethiopia, azithromycin is likely effective against the major pathogenic causes of lower respiratory infections such as *Streptococcus pneumoniae* and *Haemophilus influenzae*, and may have some effect against major causes of bacterial diarrhea such as *Escherichia coli* and *Clostridium jejuni*. Azithromycin has also been shown to have efficacy in the prevention and treatment of malaria due to both *Plasmodium falciparum* and *Plasmodium vivax*," the authors write.

"The dangers of nonspecific antibiotic use have been well-described in the scientific literature. The common wisdom is that overprescribing antibiotics results in increased morbidity and mortality from drug-resistant organisms, and that society would be better off were physicians to restrain their use of the drugs. However, the effect of nonspecific mass antibiotic use on mortality has never before been assessed in a group-randomized clinical trial. In an area in which residents have very limited access to antibiotics, mass distribution of oral azithromycin appears to reduce mortality in preschool [children](#). Further assessment of

the mechanism, generalizability, effects of drug resistance or other adverse outcomes, and cost-effectiveness of antibiotic administration in impoverished rural settings may be needed to provide further insight to guide public health policy."

More information: JAMA. 2009;302[9]:962-968.

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