

The effectiveness of antibiotics in treating cholera

June 19 2014

Researchers from the Cochrane Infectious Diseases Group, co-ordinated through the editorial base in LSTM, conducted an independent review of the effects of treating cholera with antimicrobial drugs, published in *The Cochrane Library* today.

Cholera is an acute watery diarrhoea caused by infection with the bacterium *Vibrio cholerae*, which can cause rapid dehydration and death. Effective treatment requires [early diagnosis](#) and rehydration using [oral rehydration salts](#) or [intravenous fluids](#). This review looked at the effects of adding [antimicrobial drugs](#) to this treatment.

Thirty-nine randomized and quasi-randomized controlled clinical trials were included in the review, with a combined total of 4623 participants, both adults and children. Overall the researchers found that [antimicrobial therapy](#) shortened the average duration of diarrhoea by about a day and a half when compared to placebo or no treatment. Antimicrobial therapy also reduced the total stool volume by 50% and reduced the amount of rehydration fluids required by 40%, and shortened the duration of fecal extraction of vibrios bacteria by almost three days.

There was substantial variation between trials in the size of these benefits, probably due to differences in the antibiotic used, the trial methods (particularly effective randomization), and the timing of outcome assessment. However the benefits of antibiotics were seen both in trials recruiting only patients with severe dehydration and in those

recruiting patients with mixed levels of dehydration.

In direct head-to-head comparisons, researchers found that there were no obvious differences detected in diarrhoea duration or stool volume for tetracycline compared to doxycycline or tetracycline compared to ciprofloxacin or norfloxacin. However, a higher number of studies looked at indirect comparisons and in those cases tetracycline appeared to have larger benefits than doxycycline, norfloxacin and trimethoprim-sulfamethoxazole, while single dose azithromycin shortened the duration of diarrhoea by over a day compared to ciprofloxacin and by half a day compared to erythromycin. Tetracycline was not compared with azithromycin.

Ya'ara Leibovici-Weissman from Tel Aviv University said: "In treating cholera a quick and accurate diagnosis remains key, but it is clear from the results that antimicrobials result in substantial improvements in clinical and microbiological outcomes, with similar effects observed in severely and non-severely ill patients. Our results also point to the likelihood that azithromycin and tetracycline may have some advantages over other antibiotics."

More information: Ya'ara Leibovici-Weissman, Ami Neuberger, Roni Bitterman, David Sinclair, Mohammed Abdus Salam, Mical Paul, "Antimicrobial drugs for treating cholera", Published Online: 19 JUN 2014 at The *Cochrane Library* onlinelibrary.wiley.com/doi/10.1002/14651858.CD008625.pub2/abstract DOI: 10.1002/14651858.CD008625.pub2

Provided by Liverpool School of Tropical Medicine

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