

Study finds doxycycline effective against filariasis in Southeast Asia

April 9 2008

Doxycycline alone is more effective against the most common form of filariasis in Southeast Asia than the standard treatment, with significantly fewer side effects, according to a new study published in the May 1 issue of *Clinical Infectious Diseases* and currently available online.

Approximately 120 million people worldwide are infected with thread-like parasitic filarial worms causing lymphatic filariasis. This tropical disease, found in regions of Asia, Africa, and Central and South America, is spread by mosquitoes and causes episodes of acute and chronic inflammation, including elephantiasis. The standard treatment has been a combination of diethylcarbamazine and albendazole, which are accompanied by significant side effects in about half of the patients, including fever, headache, dizziness, and enlarged lymph nodes.

Doxycycline works by targeting a symbiotic bacterium, *Wolbachia*, which live inside the filarial worms. When the bacteria are killed by the antibiotic, then the worms also die. Doxycycline has previously been found to be effective against filariasis caused by the *Wuchereria* species. However, more than half of the filarial cases in Southeast Asia are caused by the *Brugia* species. Researchers in Indonesia set out to determine whether doxycycline would be effective against this species as well, with fewer adverse reactions than standard treatment.

The authors treated 161 patients with doxycycline plus placebo, diethylcarbamazine and albendazole plus placebo, or both treatments. After 12 months, 77 percent of the patients given doxycycline plus

placebo tested negative for the *Brugia* parasite, compared to just 27 percent of those given diethylcarbamazine and albendazole plus placebo. Those given both treatments fared best: 87.5 percent tested negative for the parasite.

Nearly 43 percent of patients given diethylcarbamazine and albendazole experienced severe adverse reactions including high fevers. None of the patients given doxycycline had severe reactions. Of those receiving both treatments, about 16 percent had severe reactions.

In addition to offering a safer treatment alternative, the authors said the study demonstrates that the symbiotic *Wolbachia* bacteria in the parasite are a viable target for further anti-filariasis drug discovery.

Source: Infectious Diseases Society of America

Citation: Study finds doxycycline effective against filariasis in Southeast Asia (2008, April 9) retrieved 25 April 2024 from

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