Medical News

EDITED BY GINA PUGLIESE, RN, MS; MARTIN S. FAVERO, PHD

Update on Malaria Prevention in Travelers

Each year, 25 to 30 million people from nontropical countries visit malaria-endemic countries, and up to 30,000 North American and European travelers contract malaria annually. The evolving patterns of drug resistance among malaria parasites and changes in recommendations for malaria prevention present a challenge to physicians who advise travelers on chemoprophylaxis. Dr. Hans Lobel, of the CDC's Division of Parasitic Diseases, and Dr. Phyllis Kozarsky recently reviewed the strategies to prevent malaria, approaches to avoid human-mosquito contact, and currently recommended drugs for prophylaxis.

Because malaria transmission occurs primarily between dusk and dawn, due to the nocturnal feeding habits of the Anopheles mosquitoes that transmit malaria, reducing risk of contact can be achieved by both remaining in air-conditioned or well-screened rooms and using aerosol insecticides in rooms where mosquitoes are found. Use of mosquito nets impregnated with permethrin and application of insect repellent formulations containing less than 30% DEET (N,N-diethyl-m-toluamide) to exposed skin can reduce risk of mosquito bites further.

Chloroquine-resistant *Plasmodium falciparum* malaria, which emerged in the 1960s, has spread to almost all malaria-endemic countries except Haiti, the Dominican Republic, Central America west of Panama Canal, and parts of the Middle East. In addition to chloroquine resistance, there is a growing problem of resistance of *Plasmodium falciparum* to a combination product of pyrimethamine and sulfadoxine in Southeast Asia, Africa, and the Amazon region. Chloroquine-resistant *Plasmodium vivas* has been identified in Indonesia, Papua New Guinea, Solomon Islands, and Mynmar.

Mefloquine is the drug of choice for chemoprophylaxis for most travelers, with doxycycline and chloroquine being less effective alternatives. Mefloquine is tolerated well at prophylactic dosages, but anecdotal reports have raised concern about its adverse effects. Resistance to this drug has emerged in parts of Southeast Asia and may spread to other parts of the world. The major disadvantages of doxycycline are the need for daily dosing, its contraindication for young children and pregnant women, and its adverse effects. Chloroquine is effective for prophylaxis only in Central America, the Caribbean, and parts of the Middle East.

The authors warn that few new drugs will be available in the near future because of reduced funding for antimalarial drug research and development; therefore, the usefulness of currently available drugs needs to be prolonged by rational use.

FROM: Lobel HO, Kozarsky PE. Update on prevention of malaria in travelers. *JAMA* 1997;278:1767-1771.

Adverse Drug Events Are Costly

The annual national cost of drug-related morbidity and mortality has been estimated at more than $136 billion. Because of the current economic crisis within hospitals, quality-improvement efforts that are cost-effective are likely to be pursued. Moreover, despite the widespread impression that adverse drug events (ADEs) in hospitals are costly, few data are available to quantify the additional resource utilization associated with these events. Two recent studies examined the costs associated with ADEs.

Boston researchers from Brigham and Women's Hospital, Harvard Medical School, and the West Roxbury Veterans' Administration Medical Center recently reported the results of a prospective cohort study to define the costs associated with ADEs. The cohort included 4,108 admissions to a stratified random sample of 11 medical and surgical units in two tertiary-care hospitals over a 6-month period. Incidents were detected by self-report and daily chart review, and were classified as to whether they represented ADEs.[1]

The primary outcome of this study was the ADE, defined as an injury resulting from medical intervention related to a drug. An example given was a patient who received a beta blocker and developed complete heart block requiring temporary pacing. If the patient had been taking channel blocker already and had first-degree atrioventricular block, the event would be considered a preventable ADE. Potential ADEs, in which an error was made but no harm occurred, were not included in the study.

During the study there were 247 ADEs among 207 admissions. After outliers and multiple episodes were excluded, there were 190 ADEs, of which 60 were preventable. In a paired regression analysis adjusting for multiple factors, including severity, comorbidity, and case mix, the additional length of stay associated with an ADE was 2.2 days, and the increased cost associated with an ADE was $3,244. For preventable ADEs, the increases were 4.6 days in length of stay and $5,857 in total cost. Based on these costs and data on the incidence of ADEs, the researchers estimated that annual costs attributable to all ADEs and preventable ADEs for a 700-bed teaching hospital are $5.6 million and $2.8 million, respectively. They pointed out that these estimates were conservative, because they did not include the costs of the injuries to patients or malpractice costs.

In a second study, researchers from the LDS Hospital

https://doi.org/10.1086/647796 Published online by Cambridge University Press