

Abstract

In vitro study of Mefloquine/Quinine in Plasmodium falciparum.

An in-vitro study designed for determining sensitivity of Plasmodium falciparum strains isolated from Kanchanaburi Province to Mefloquine/Quinine combination, was conducted over a period of one year from January to December 1986.

Blood samples of 45 patients suffering from falciparum malaria were cultured by an in - vitro method of continuous cultivation (Trager, W. and Jensen, J.W. 1976), using standard medium R PMI 1640. Out of these blood cultures only those of 30 patients (66%) could be included in the drug sensitivity test.

Minimal inhibitory concentration (M I C) of the drug was determined and defined as the first concentration of the drug which completely inhibited the parasite maturation.

Mean value of M I C of Mefloquine/Quinine for P. falciparum was 0.075/3.75 to 0.225/11.15 nM/ml. There were significant differences ($P \leq 0.05$) between the control group and the treatment group.

In this study the effects of Mefloquine/Quinine on the fine structure of P. falciparum was also investigated. The changes observed after the drug treatment were noted in the outer membrane (including those surrounded the food vacuole) and the digestive vacuole. These changes were followed by cytoplasmic degeneration and vacuolation. The relationship of these changes to the mode of action of these compounds is discussed extensively. It seems possible that they primarily interfere with limiting membrane mitochondria functions. In addition, there was a modification of pigment formation.