

P. falciparum Gametocytemia Following Schizonticidal Treatment

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OBJECTIVE : To document the effect of various antimalarials upon the production of gametocytes.

BACKGROUND : Sulfonamide antimalarials, for example, sulfalene and sulfadoxine, have been associated with an apparent stimulation of *P. falciparum* gametocytemia. Administration of sulfalene at the time of gametocyte genesis (approximately 10 days before the appearance in the peripheral blood) has been shown to stimulate gametocyte production but is thought to render them sterile. Sulfalene given closer to the time of gametocyte patency does not sterilize the gametocytes and they remain infective to vector mosquitoes (2).

In view of the widespread use of Fansidar (sulfadoxine-pyrimethamine) for malaria in Thailand and in other areas of the world where the parasite is resistant to chloroquine, it is important to know the effect upon gametocytemia of this drug combination. If the drug is shown to be stimulatory, then the use of a gametocytocide such as primaquine is mandatory in any rational control scheme. Quinine is considered to have no effect upon gametocytemia in *P. falciparum*.

METHODS : Retrospective analysis of data obtained from patients treated at the Trad Provincial Hospital in 1973 and 1974 was accomplished. The original study was an evaluation of the therapeutic efficacy of three antimalarial regimens, Fansidar alone, quinine alone, and a course of quinine followed by a dose of Fansidar. The three groups were analyzed in terms of the percentage of patients developing blood films positive for gametocytes and gametocyte levels reached following therapy.

RESULTS :

a. Numbers of patients developing gametocytes (Figure 1). On admission to the study patients from the three groups were alike in the prevalence of gametocyte-positive smears. However, the Fansidar group subsequently showed a dramatic increase in the incidence of gametocyte positive smears. On Day 14, 82% of patients were positive in the Fansidar group whereas only 7% were positive for gametocytes in the quinine group.

b. Gametocyte counts in patients following antimalarial therapy (Figure 2). Peak gametocytemia was seen in all groups on Day 5 following therapy. However, there was striking difference in gametocyte levels attained. The Fansidar group had a mean value of 460 gametocytes per cu.mm., whereas the quinine group had a mean value of only 65/cu.mm.

(2) Clyde, D.C., Personal communication.

Retrospective analysis of data obtained from patients treated with other antimalarials is being examined for comparison with those reported here.

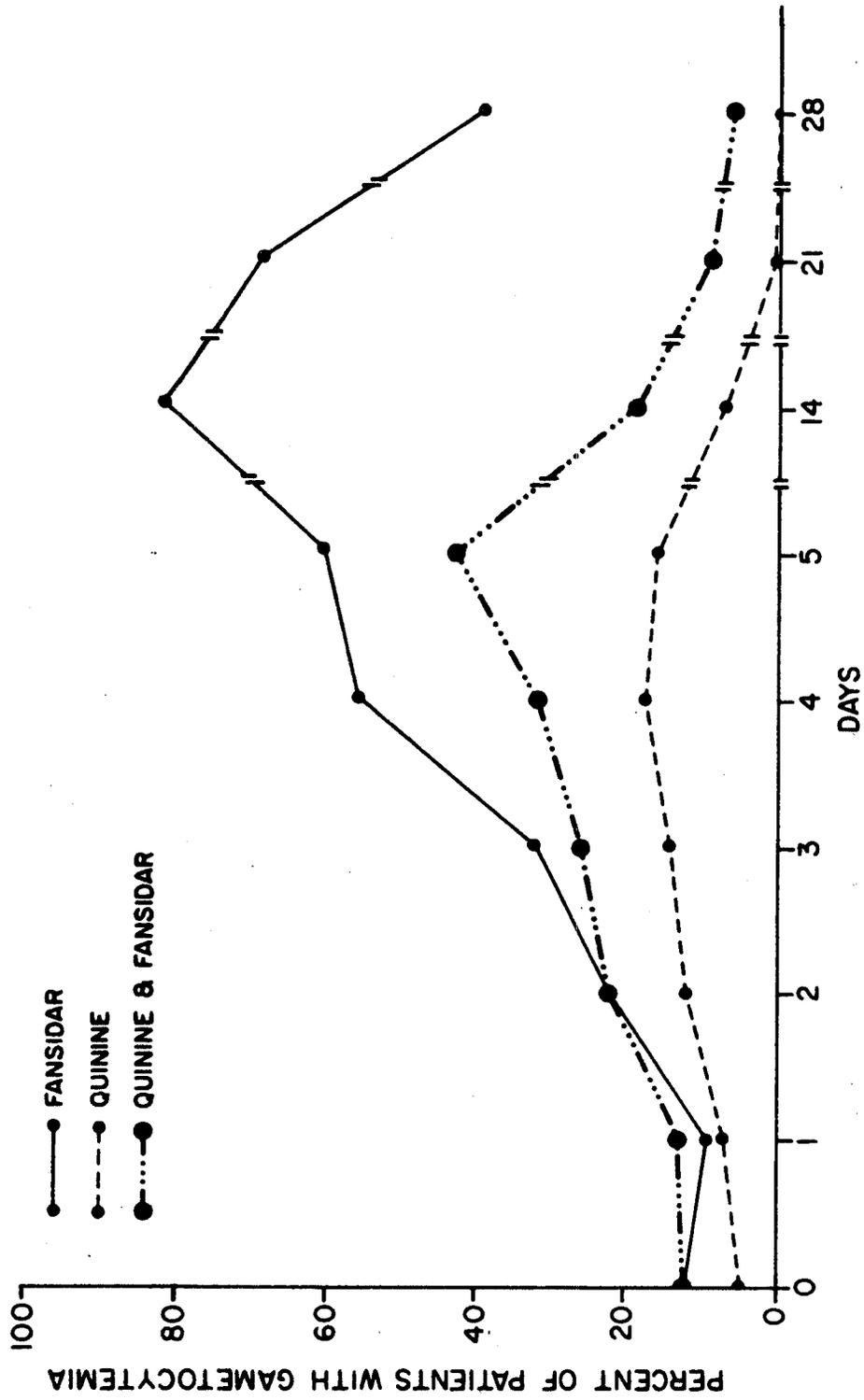


FIGURE 1 GAMETOCYTEMIA IN PATIENTS TREATED WITH QUININE, FANSIDAR OR QUININE FOLLOWED BY FANSIDAR.

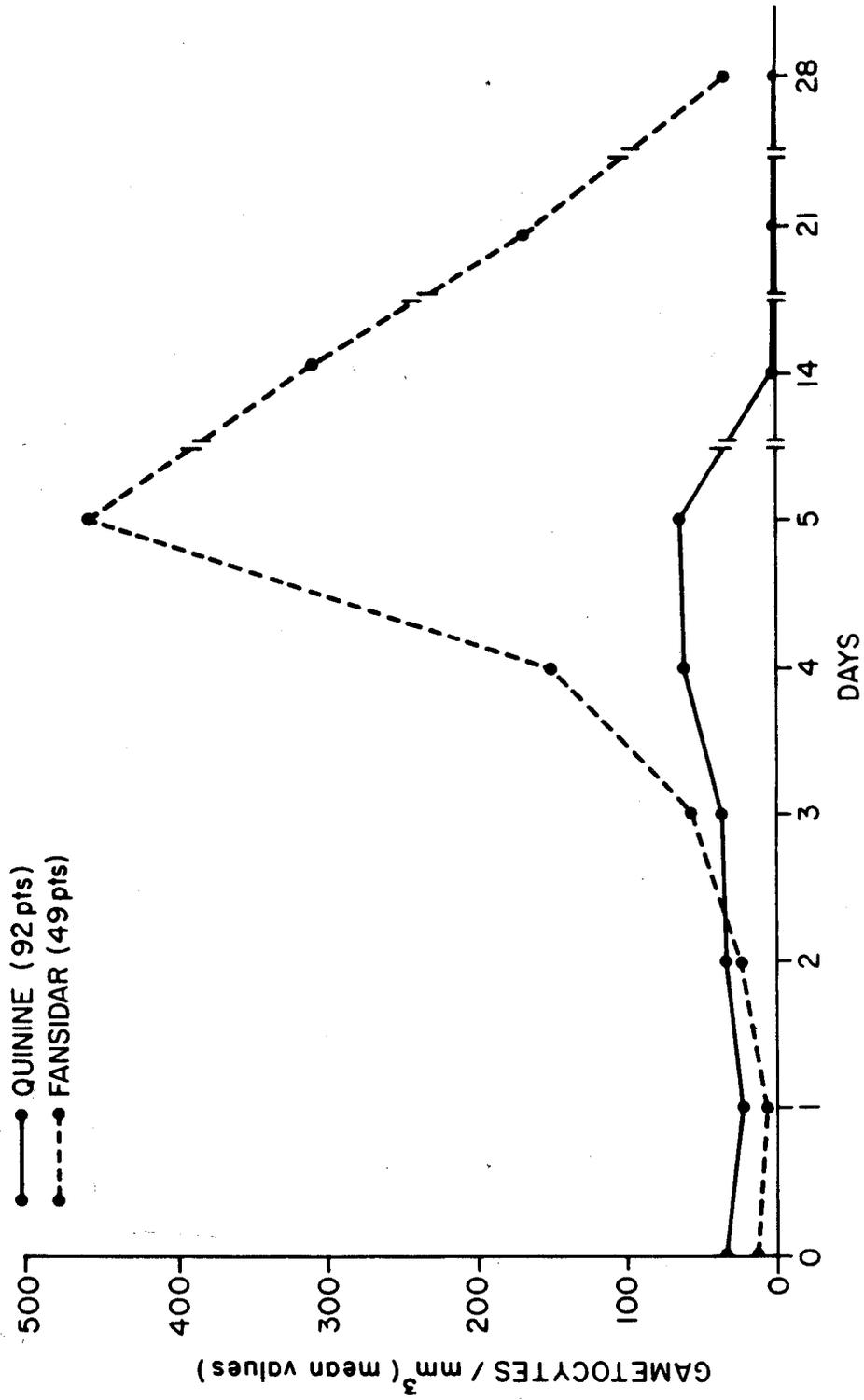


FIGURE 2 MEAN GAMETOCYTEMIA IN PATIENTS TREATED WITH QUININE OR FANSIDAR