

## Intravenous Quinine for Falciparum Malaria

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**OBJECTIVE:** To determine the optimum dose of quinine when intravenously infused for severe falciparum malaria.

**DESCRIPTION:** In a recent study, quinine by intravenous infusion proved more effective than oral quinine in the radical cure of recrudescing falciparum malaria (Hall, 1972). Intravenous quinine is often used in the management of severe acute falciparum malaria but many physicians are deterred by the well-known toxicity of the drug. Chloroquine by intravenous infusion is often preferred therapy. Therefore it is important to evaluate the role of intravenous quinine in this situation. The study was begun at Trad on 17 January 1973. Patients with falciparum malaria are considered for study. Criteria for selection are a parasite count over 100,000 per cmm or clinically severe illness. 24 patients have so far been studied in detail and the response of other patients also noted. Quantitative parasite counts are performed twice daily.

**PROGRESS:** Initially most adult patients received 20 grains quinine in the first liter of intravenous fluid. Toxicity (e.g. tinnitus) occurred in some patients on this dosage but was absent when the initial liter contained only 10 grains quinine. This is now the standard dose for patients not in coma, whereas patients with evidence of cerebral malaria initially receive 20 grains quinine in the first liter. Clinical and parasitemic response to the lower dose is usually excellent and further intravenous therapy is usually unnecessary. The first liter is infused in anything from 30 minutes to 6 hours depending on the clinical picture. Oral therapy is then given, which is usually quinine with or without tetracycline. (At Prachinburi Hospital Fansidar is often the drug combination used following the intravenous quinine).

Likewise in infants and small children, intravenous quinine has proved very successful, in fact lifesaving. Infants usually receive about 2.5 grains in 250 ml fluid and small children about 5 grains in 500 ml.

In comatose patients shots of 4 mg Decadron (dexamethasone) are injected into the drip tubing about every 6 hours.

Since intravenous quinine has proved so effective in reducing both symptoms and parasitemia, this mode of therapy is now being increasingly used in patients who are moderately but not seriously ill. Intravenous quinine appears less toxic than oral quinine.

**FINAL COMMENT:** The majority of patients with severe falciparum malaria respond rapidly to an intravenous infusion of 1 liter of saline to which is added 10 grains quinine dihydrochloride. The average time of infusion is 3 hours. Further doses more slowly infused are occasionally required.

Normal saline is the preferred solution because hyponatremia has been detected in 75% of patients with malaria in Thailand.

### REFERENCES:

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2. Miller, L. H., Makaranond, P., Sitprija, V., Suebsanguan, C., and Canfield, C. J. Hyponatremia in Malaria. *Ann. Trop. Med. Parasitol.* 61; 265—279, 1967.