

## Care of Malaria Patient

### GENERAL GUIDELINES

- When a patient in or from a malarious area presents with fever, a blood smear should be prepared and examined to confirm the diagnosis and identify the species of infecting parasite.
- The management of malaria depends very much on the health facilities available and the endemicity of the disease, i.e. the likely immune status of the patient.
- For example, in areas of intense transmission asymptomatic parasitemia is common in older children and adults, and fever is more likely to be the result of some other infection. On the other hand fever may precede detectable parasitemia in nonimmune adults or young children.
- Patients with severe malaria or those unable to take oral drugs should receive parenteral antimalarial therapy.
- If there is any doubt about the resistance status of the infecting organism, then quinine or quinidine should be given.
- If the temperature is high on admission (greater than 38.5°C) then symptomatic treatment with antipyretics and tepid sponging brings symptomatic relief, and also reduces the likelihood that the patient will vomit the oral antimalarials. This is particularly important for young children.
- Several drugs are available for oral treatment, and the choice of drug depends on the likely sensitivity of the infecting parasites. Chloroquine remains the treatment of choice for the benign human malarias.

### UNCOMPLICATED MALARIA

- Infections due to *P. vivax*, *P. malariae*, *P. ovale* and known sensitive strains of *P. falciparum* should be treated with oral chloroquine (25 mg of base/ kg).
- Patients should be monitored for vomiting for 1 hour after the administration of any oral antimalarial drug.
- Symptom based treatment with tepid sponging and acetaminophen administration lowers fever and thereby reduces the patient's propensity to vomit these drugs.
- Minor central nervous system reactions (nausea, dizziness, and sleep disturbances) are common.
- Pregnant women, young children, patients unable to tolerate oral therapy and nonimmune subjects (e.g. travelers) with suspected malaria should be hospitalised.
- If there is any doubt as to the identity of the infecting malarial species, treatment for *falciparum* malaria should be given.
- A negative blood smear does not rule out malaria; thick blood films should be checked 1 and 2 days later to exclude the diagnosis.
- Nonimmune subjects with malaria should have daily parasite counts performed until negative thick films indicate clearance of the parasite.
- If the level of parasitaemia does not fall below 25 percent of the admission value at 48 hours or if the parasitaemia has not cleared by 7 days (and compliance is assumed), drug resistance is likely and the regimen should be changed.

### SEVERE MALARIA

- Severe *falciparum* malaria constitutes a medical emergency requiring intensive nursing care and careful management.
- The patient should be weighed and if comatose, placed on his or her side and given a single parenteral dose of phenobarbital (5 to 20 mg/ kg) to prevent convulsions.
- Frequent evaluation of the patient's condition is essential.
- The choice of antimalarial drug depends on knowledge of the prevailing sensitivity of *P. falciparum* to antimalarials. If there is any doubt, quinine should be given.  
The optimal therapeutic range for quinine in severe malaria is not known with certainty, but total plasma concentrations between 8 and 20 mcg/ml are effective and do not cause serious toxicity. An initial loading dose should be given so that therapeutic concentrations are reached as soon as possible. If the patient remains seriously ill or in acute renal failure for more than two days, the maintenance dose should be reduced by 30 to 50 percent to prevent toxic accumulation of the drugs. The initial doses should never be reduced.
- If chloroquine is given, dose reduction is unnecessary even in renal failure.
- Provided that it can be performed safely, exchange transfusion is indicated for patients with high level parasitemia (greater than 15 percent) and vital organ dysfunction. Exchange transfusion should be considered for severely ill patients with a level of parasitemia between 5 and 15 percent.

### WHEN THE PATIENT IS UNCONSCIOUS

- The blood glucose level should be measured every 4 to 6 hours, and values below 40mg/dl indicate prompt treatment with intravenous dextrose. All patients treated with intravenous quinine should receive a continuous infusion of 5 to 10 percent dextrose.
- The parasite count and hematocrit level should be measured every 6 to 12 hours. Anaemia develops rapidly; if the hematocrit falls below 20%, then whole blood (preferably fresh) or packed cells should

be transfused slowly, with careful attention to circulatory status and judicious use of a small dose of a diuretic to prevent fluid overload.

- Exchange transfusion should be strongly considered for patients with a high level of parasitaemia (greater than 10 %) and altered mental status.
- Renal function should be checked daily.
- Management of fluid balance is difficult in severe malaria because of the thin dividing line between overhydration (leading to pulmonary edema) and underhydration (contributing to renal impairment).
- If necessary, pulmonary artery occlusion pressures should be measured and maintained in the low-normal range.
- As soon as the patient can take fluids, oral therapy should be substituted for parenteral treatment.

## COMPLICATIONS

### ACUTE RENAL FAILURE

- If the level of blood urea nitrogen or creatinine rises despite adequate rehydration, fluid administration should be restricted to prevent volume overload.
- Even with adequate peritoneal dialysis, secondary bacterial infections are common in the tropics, and hemodialysis and hemofiltration are preferable.
- Some patients will pass small volumes of urine sufficient to allow control of fluid balance; these cases can be managed conservatively if other indications for dialysis do not arise.
- Renal function usually improves within days, but full recovery may take weeks.

### OTHER COMPLICATIONS

- Patients who develop spontaneous bleeding should be given fresh blood and intravenous vitamin K.
- Convulsions should be treated with intravenous or rectal benzodiazepines.
- Aspiration pneumonia should be suspected in any unconscious patient with convulsions, particularly with persistent hyperventilation.
- Intravenous antimicrobial agents and oxygen should be administered, and pulmonary toilet should be undertaken.
- Hypoglycaemia or gram negative septicaemia should be suspected and treated when any patient suddenly deteriorates for no obvious reason while receiving antimalarial treatment.

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