SIMPLE STEP-BY-STEP GUIDE to the DIAGNOSIS and MANAGEMENT of SEvere Malaria

District Hospital Level

Severe Malaria is a Medical Emergency

STEP 1: Diagnose Malaria

High index of suspicion

- Suspect malaria in any patient presenting with fever or history of fever who lives in a malaria area or visited a malaria area.

Confirm the diagnosis of malaria

- Urgently perform a rapid malaria diagnostic test.

and/or

- Send blood specimen in a purple top tube to laboratory for malaria smears. Mark the lab request form as URGENT and chase the results.

- The treatment of malaria is urgent and any delays in diagnosis and treatment may result in severe malaria.

STEP 2: Assess Severity

If malaria is confirmed, re-assess the patient for signs of severe malaria.

Features of Severe Malaria:

- Clinical History: Convulsion, Persistent vomiting, Severe diarrhoea, Black urine
- Physical Examination: Prostration (severe general body weakness), Impaired consciousness (sleepiness, confusion, coma), Respiratory distress, Cerebrospinal collapse (hypotension, shock), Jaundice, Severe pallor
- Abnormal bleeding
  - Basic (Side Room) Tests: Blood glucose (<2.2 mmol/L)
  - Urine dip stix (haemoglobinuria)

If any one of the above features is present, diagnose and treat as severe malaria.

STEP 3: Special Investigations

As soon as severe malaria is diagnosed the following special investigations should be ordered urgently:

- FBC, ESR and/or CRP
- Malaria smears
- Urea, electrolytes, Creatinine
- Liver function tests
- Blood lactate (>5 mmol/L)
- Blood culture, if indicated (see Artesunate poster for details)
- Urine dip stix (haemoglobinuria)

A high index of suspicion is critically important.

STEP 4: Antimalarial Treatment

Commence parenteral antimalarial treatment

- IV artesunate preferred (if available), Dosing (give at 0, 12 hours and 24 hours): children (<20 kg): 3 mg/kg bw per dose; children (≥20 kg) and adults: 2.4 mg/kg bw per dose.

OR

- IV quinine – loading dose strictly followed by maintenance doses both given as a SLOW IV infusion over 2-4 hours and dosed strictly according to body weight. (see details below)
- NB: Severe malaria cannot be treated effectively with oral antimalarial drugs: Coartem® or quinine tablets.

STEP 5: Hospital Admission

- Admit patient to: ICU or high care ward or high care bed

- Caution: Severe malaria patients may need intensive nursing so they should not be managed in a general ward

STEP 6: Collaboration / Referral

Consider contacting a referral hospital early (if severely ill and/or present severe complications e.g.

- Cerebral malaria (unconsciousness)
- Respiratory distress syndrome
- Shock (severe hypotension)
- Metabolic acidosis
- Septicaemia
- Renal failure
- Liver failure
- Disseminated intravascular coagulation (DIC)

STEP 7: In-patient Monitoring

The following monitoring is required:

- Routine vital signs observations (TPR and BP), 4 hourly
- Strict input / output record of fluids
- Blood glucose (2 to 4 hourly)
- Haemoglobin (daily)
- Malaria parasite count (daily)
- Nurses must report abnormal observations immediately to doctor.

STEP 8: Ancillary Treatments

Consider ancillary treatments if indicated e.g.

- Oxygen
- IV Fluids
- Temperature control (paraacetamol, tepid sponging)
- Anticonvulsants (hypoglycaemia must always be ruled out before giving anticonvulsants)
- Piper (CVP line, urethal catheter, NG tube)
- Assisted ventilation
- Antibiotics recommended in all children with severe malaria-secondary bacterial infections are common.

Make a clear plan for the effective management of each complications identified.

Note: Antimalarial medication only kills malaria parasites in the blood, it does not correct the complications. Complications must be treated accordingly.

STEP 9: Patient Review

Chase and obtain the results of the initial laboratory blood tests (step 3) within 2-4 hours of commencing treatment.

Regularly review the patient looking for the following complications:

- Severe anaemia (Hb ≤ 6 g/dl)
- Septicaemia (high white cell count)
- Metabolic acidosis (pH < 7.25, and/or high anion gap), and/or plasma bicarbonate < 15 mmol/L, and/or venous lactate > 4 mmol/L
- Renal failure (creatinine >260 µmol/L)
- Liver failure (severe derangement of liver enzymes)

If renal failure, decrease main dose of artesunate according to body weight.

If intubated, give 20mg/kg in 5% Dextrose drip, run slowly 6 hours.

If renal failure, decrease maintenance doses by 1/3 to 1/2 from day 3.

STEP 10: Continuation of Care

- If transfer to referral hospital is not necessary the patient should be reviewed twice daily in the ward with monitoring records and results of investigations until clinical condition improves and stabilizes.

- Blood tests (FBC, Malaria parasites, U/E/creatinine, LFT) should be repeated at least every two days and patient reviewed with the results.

- Monitor urine output.

- Patient should show clinical improvement by day 3 of treatment. If not, the referral hospital should be contacted to discuss the patient’s condition.

Countries with ongoing transmission of malaria, 2013

 compiled by the National department of health 2016