

MALARIA MANAGEMENT IN BSF UNITS DEPLOYED IN MALARIOUS HYPERENDEMIC ZONES

Objectives: -

To impart practical knowledge about all aspect of Malaria management to BSF personnel deployed in malarious hyper endemic zones where multi drug resistance malaria is prevalent.

About the Diseases: -

What is Malaria:

Malaria is a protozoal disease caused by infection with parasite of genus **Plasmodium** transmitted by the bite of infected female Anopheles mosquitoes.

Incubation period of Malaria:

Incubation period is length of time between the infective mosquito bite and the first appearance of clinical signs of which fever is most common. This duration varies with the species of the parasite:-

P. falciparum : 9 – 14 days

P. vivax : 8 - 17 days

Signs and symptoms of complicated Malaria:

Serious complications can arise in P. Falciparum infection and rarely in P. Vivax. They may sometimes develop suddenly over a span of time as short as 12-24 hours and may lead to death, if not treated promptly and adequately. Severe malaria is clinically characterized by confusion or drowsiness with extreme weakness. In addition, the following may develop: -

- Impaired consciousness/coma
- Repeated generalized convulsions
- Jaundice (S. bilirubin >3mg/dl)
- Severe anaemia (Hb <5mg/dl)
- Pulmonary oedema/ARDS
- Renal failure (S.Creatinine >3mg/dl)
- Hypoglycaemia (Plasma glucose <40mg/dl)
- Metabolic acidosis
- Circulatory collapse/shock
- Spontaneous bleeding and laboratory evidence of DIC
- Macroscopic haemoglobinuria
- Hyperthermia (Temperature >104 degree F)
- Hyperparasitaemia (> 10% parasitized RBCs in hyperendemic areas)

How to diagnose Malaria?

Identification of malaria parasite is done by-

a) **Microscopic slide method.**

b) **Antigen based RDK testing.**

Method of RDK in steps: -

- a. One pin prick
- b. One drop blood over kit of plastic plate
- c. 2 drops control fluid
- d. 15-20 minutes result will be in front of your eyes.

(The user manual should always be read to avoid false negative result)

A. **Treatment of uncomplicated P. falciparum cases:**

i. **Artemisinin based Combination Therapy (ACT)**

- 1) **Combipack of Artemether (80 mg) + Lumifentrine (480mg)**

Convenient 3 days doses regimen in adult is as under:-

	Day-1		Day-2		Day-3	
Time	0 hour	8 hour	24 hour	36 hour	48 hours	60 hours
Adult	1 st dose	2 nd dose	3 rd dose	4 th dose	5 th dose	6 th dose

OR

- 2) **Artesunate: 200 mg (4 Tabs of 50 mg)** daily for 3 days

+

3Tabs of Sulfadoxine+ Pyrimethamine containing (Sulfadoxine 500mg & Pyrimethamine 25 mg) on day 1.

- ii. **Primaquine: 45 mg Stat** on day 2

POINTS TO REMEMBER:-

- Once a suspected case is diagnosed positive by RDT or microscopy, treatment is started immediately.
- Avoid starting treatment on an empty stomach.
- The first dose should be given under observation. If the patient vomits the first dose within 30 minutes, dose should be repeated.
- Primaquine is contraindicated in infants, pregnant women and individuals with G6PD deficiency.
- 14 day regimen of Primaquine should be given under supervision.
- Primaquin tablets should be taken after a meal; not on an empty stomach.
- ACT is not to be given in 1st trimester of pregnancy.
- Combipack is available of Artesunate and SP, as Monotherapy with Artesunate is banned.
- Anti-malarial drugs should be stopped only after TPC shows no parasite
- The patient should also be examined for other concomitant illnesses.

B. **Treatment of severe malaria cases:**

Severe malaria is an emergency and treatment should be given as per severity and associated complications which can be best decided by the treating physicians. Before admitting or referring patients, the attending doctor or Nursing staff/health worker, whoever is able to do it, should do RDT and take blood smear; **give a parenteral dose of artemisinin derivative or quinine in suspected cerebral malaria cases** and send case sheet, details of treatment history and blood slide with patient. The guideline for specific antimalarial therapy is as follows:

Parenteral artemisinin derivatives or quinine should be used irrespective of chloroquine resistance status of the area with one of the following options:

Chemotherapy of severe and complicated malaria

Initial parenteral treatment for at least 48 hours: CHOOSE ONE of the following three options	Follow-up treatment, when patient can take oral medication following parenteral treatment
i. Artesunate : 120 mg (2 vials of 60 mg) i.v. or i.m. given on admission (time=0), then at 12 h and 24 h, then once a day OR ii. Artemether : 160 mg (2 vials of 80 mg) i.m. given on admission then 80 mg i.m. per day. OR	Full course of ACT
iii. Quinine : Inj Quinine 600 mg (2 Amp of 300mg quinine) on admission (IV infusion in 5% Dextrose or divided IM injection) followed by maintenance dose of inj Quinine 300mg (1 Amp) 8 hourly. Infusion rate should not exceed 150mg per hour. Loading dose of 600mg quinine should not be given, if the patient has already received quinine.	Quinine Tab Quinine 300mg three times a day with doxycycline 100 mg once a day - To complete 7 days of treatment.

Note: The parenteral treatment in severe malaria cases should be given for minimum of 48 hours once started OR till the time patient starts to have oral medication without difficulty.

NOTE: Anti-malarial drugs should be stopped only after TPC shows no parasite.

Malaria kit:

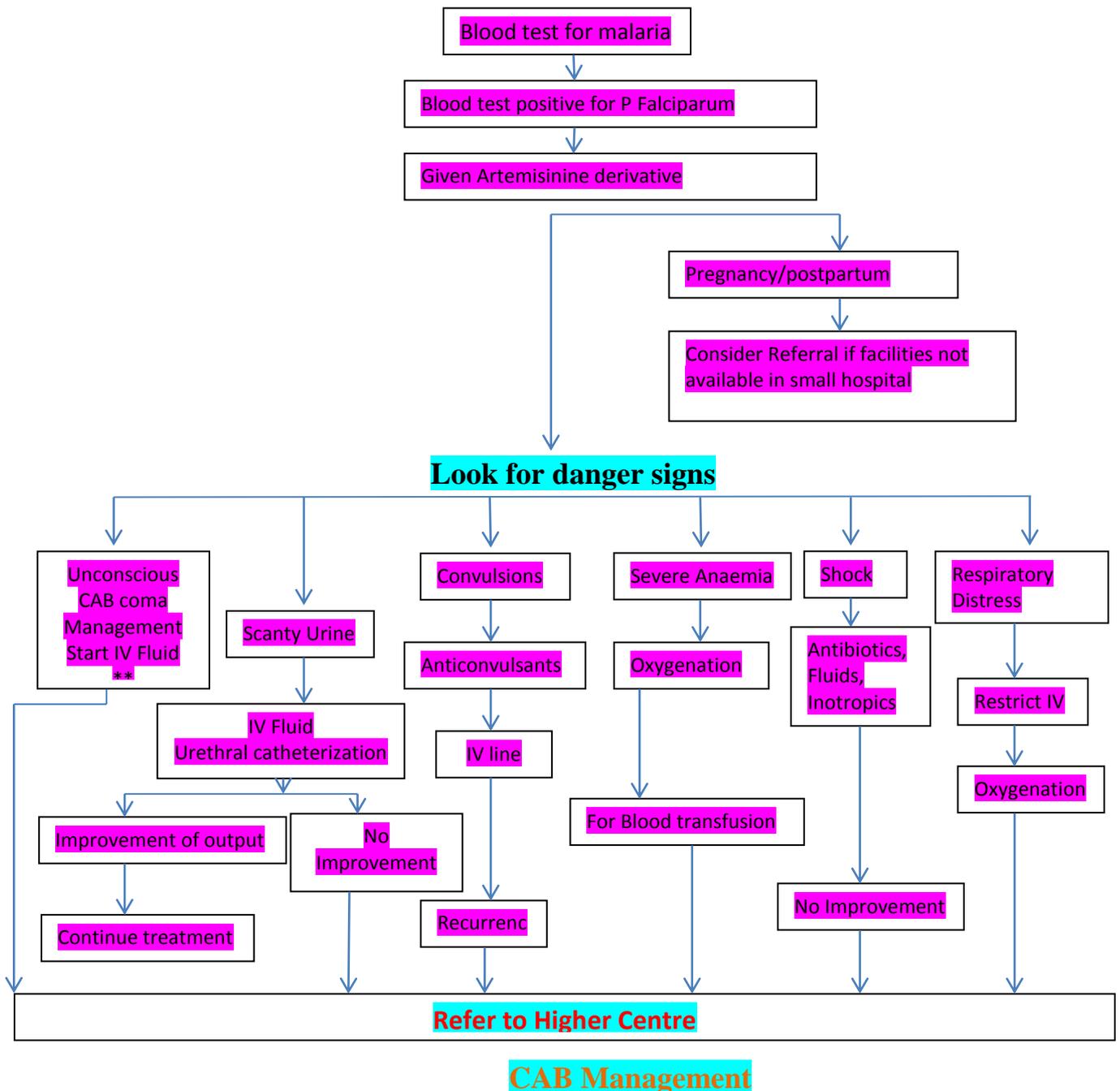
Medicines provided in the malaria kit should be colour coded since it has been observed and also reported by doctors attending the “orientation programme on malaria prevention” at Malaria Cell (CH BSF Agartala) that troops/personnel do not bother to know or are unaware of what and when and how the medicines are used. Telephonic calls are also being received by patients in remote villages who fall sick and seek advice since there is no proper health facility in the near vicinity of their residence. It becomes difficult to provide advice sometimes since the patients are not able to read due to either small print or their family members are not literate enough.

It is felt a colour coding system is to be adopted for the kit as follows and packed in individual envelopes with coloured sticking tape.

RED	ARTETHER	BLUE	ACT (ASP)	ORANGE	QUININE
YELLOW	ARTEMETHER	BLACK	ACT (ALT)		
GREEN	ARTESUNATE	WHITE	PARACETAMOL		

TREATMENT AND REFERRAL PROTOCOL

Clinical suspicion of severe malaria



1. Assess the situation
 - Take in quickly what has happened.
 - Look for dangers to yourself and to the casualty
 - Make the area safe.

2. Asses casualties
 - An unconscious person always takes priority and needs immediate help to make sure his or her heart is beating and lungs are breathing, only then should you begin to asses any injuries.

The sequence of priorities of first aid/emergency management in case of unconscious patient is

C → A → B

C- CIRCULATION

A -AIRWAY

B -BREATHING

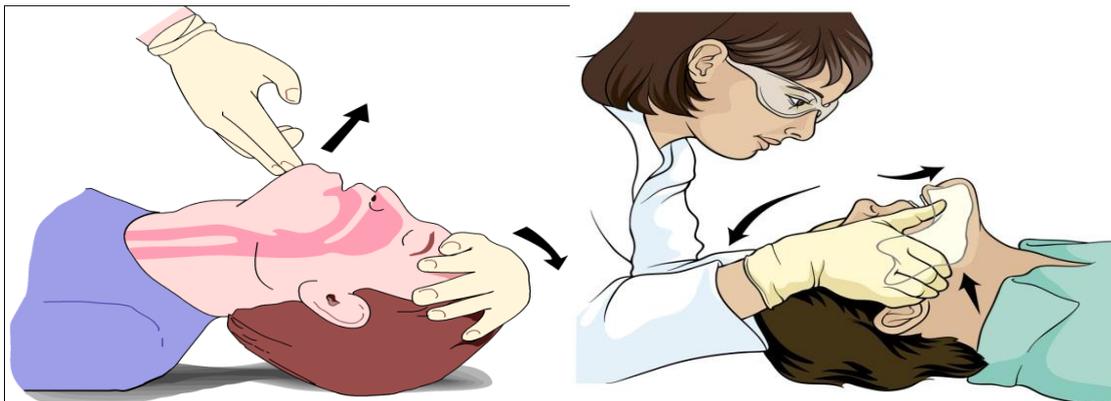
C- Circulation

Check for circulation (to see if the heart is still beating) by feeling the Adam's apple (lump on the windpipe) with two fingers. Slide the fingers to the side of the windpipe and feel for the pulse. If the heart has stopped beating start chest compression to try to restart the heart. Place your hand flat just above the point where the ribs meet the breastbone. Bring the other hand on top of it and lock your fingers together. With your arms straight, press down firmly on the breastbone, pushing it down by 4-5 cm. Release the pressure and repeat the compressions at a rate of about 100 per minute. If the person has stopped breathing, alternate 30 chest compressions with two mouth to mouth breaths until help arrives or heart starts breathing.



A- Airway

The airway of an unconscious person may be narrowed or blocked, making breathing difficult and noisy or impossible. This happens when the tongue drops back and blocks the throat. Lifting the chin and tilting the head back lifts the tongue away from the entrance to the air passage. Place two fingers under the point of the person's chin and lift the jaw, while placing your other hand on the forehead and tilting the head well back. If you think the neck may be injured, jaw thrust method is to be used to open the airway.



Chin lift head tilt method

Jaw thrust method

B- Breathing

Check for breathing by placing your head near the person's nose and mouth. Feel for breath on your cheek or moisture on the back of your hand.

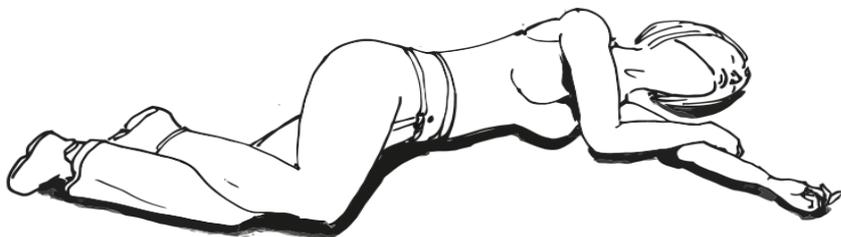


If a person has just stopped breathing, use mouth to mouth ventilation. Make sure the airway is open and head tilted back. Pinch the nostrils together, take a deep breath and blow into the mouth, firmly sealing your lips around the mouth so air is not lost. You should see the chest rise. Remove your lips and let the chest fall.

Continue CPR (Cardio Pulmonary Resuscitation) by giving 30 effective chest compressions followed by 2 mouth to mouth breathe by the rate of 100 compressions per minute until emergency help arrives or heart starts beating and breathing begins.

The Recovery Position

This is the best position for an unconscious person or someone having a fit. It allows them to breathe easily and prevents them from choking. After checking the CAB, bent the nearest arm to you, putting the hand by the head. Then bring the far arm across the chest and hold both hands in one of yours. With your other hand pull the furthest leg up at the knee and roll the person towards you to lie in this position.



LEFT LATERAL POSITION

First things first

In an emergency any number of things may need your attention at the same time. If you try to do everything at once you may easily get distracted from the essential matters.

An unconscious person always takes priority and needs immediate help to make sure that the patient's heart is beating and he can breathe.

Sd/xx
Dr. Asis Raychoudhury
DIG (Med)/MS
CH BSF Agartala