Sub: Malaria

Defination:

It is defined as a mosquito borne infections disease of human caused by parasitic protozon of the genus plasmodium transmitted via a bite form on infected female anopheles mosquito.

Epidemiology:

- An estimated 300 million cases of malaria occur each year.
- Annually accounting for 1.5 to 2.7 million death.
- Most of the death are due to infection with plasmodium falciparum and occur among children and pregnant women in the developing world, especially sub-saharan Africa.

Etiology:

- By protozoan parasites of the genus plasmodium.
- There are 4 species —
    - plasmodium falciparum.
    - plasmodium vivax.
    - plasmodium ovale.
    - plasmodium malariae.

People get malaria by bittening of infected female Anopheloes mosquito.

Life cycle of malaria:

There are the 4 stage —

- Transmission
- pre-erythrocytic phase.

Sub:

- Asexual phase.
- Sexual phase.

Transmission:

Female anopheles mosquito bites and releases sporozoites into the blood ~~stream~~ stream. These circulate for about 30 mins and then invade the liver.

pre-erythrocytic phase:

Also called the 'tissue' or 'hepatic' phase.

Takes place in hepatocytes. The sporozoites mature into Schizonts which rupture to release merozoites

Asexual phase:

(Erythrocytic Schizogony)

Merozoites invade red blood cells. Here they grow and mature into trophozoites which appear as ring forms The trophozoites develop into Schizonts. The infected red blood cells then rupture to release numerous merozoites from the schizont to infect other red cells. Merozoite release results in fever, chills rigours and other Symptoms or malaria infection.

Sexual phase:

Some merozoites differentiate into mate and female gametocytes, the forms of plasmodia ~~infected~~ infective to mosquitoes. These are taken up by a mosquitoes during another blood meal. These fuse to form an ookinette in the gut lumen of the mosquito. The ookinette invades the stomach wall to form the oocyst. This in turn develops and releases Sporozoites which migrate to salivary gland of the mosquito. This mosquito then goes on to infect another

human host.

Route of transmission –

- Vector transmission – Bite by infective female anopheles mosquitoes.
- Direct transmission –
  - Blood transfusion.
  - The use of contaminated needle and syringe.
  - Organ transplant.
- congential transmission:–
  mother to new born.

Sings and symptoms:

- Fever.
- Shaking chills.
- Headache.
- Tiredness.
- Nausea.
- Vomiting.
- Diarrhea.
- It may cause anaemia and Jandice.

Risk factors:

Environmental factor:

- A warm humid climate temperature between 16°c and 40°c and abundant rainfall have anopheles mosquitoes.
- Vegetation nearby to provide shade for the mosquito to hide the day and digest the blood meal from the night before.

Sub:

Human factor:

- poor water supply and sanitation.
- people working in the field and in irrigation system near or on lakes and reservoris.
- Migrates moving into malarial areas clearing land looking for work refuges.

Prevention:

- preventing mosquito accessing egg laying habitats by management and modification.
- covering, emptying and cleaning of domestic water storage containers.
- apply insecticides to water storage outdoor containers.
- using personal household protection such as window screen, long sleeved clothes, coils, vaporizers.
- Massage exposed body parts with insect repellent.
- Spread awareness about dengue mosquito.

Diagnosis:

Blood film examination:

Thick blood film → used for detecting malaria larger volume of blood is examined allowing detection of even low levels of parasitaemia.

Thin blood film → Gives more information about the parasite morphology and therefore is used to identify the particular infecting species of plasmodium.

- Rapid diagnostic tests.
- PCR based techniques.
- Fluorescent techniques.
- Serologic tests.

Treatment:

- Quinine.
- chloroquine.
- Mefloquine.
- Antibiotic (Eg- doxocycline, clindamycin, azithromycin)