Model Answer

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(a) Describe causes of fever in pregnancy and puerperium (5 Marks)

(b) Discuss the management of malaria in pregnancy (5 Marks)

Describe causes of fever in pregnancy and puerperium

Introduction

- Fever in pregnancy is defined as a temperature > 38.0 °C (100.4 °F) once, or 37.5 °C (99.5 °F) on two occasions 2 hours apart
- Pregnant women with febrile illness are more likely to develop critical outcome and die than the general population.
- Fever in pregnancy can cause IUGR, Oligohydramnios, Preterm, MSL, Fetal Distress, Abortion, Postpartum Sepsis, fetal anomalies or even IUFD.
- Most common causes of fever during pregnancy include URTI (Viral or Bacterial), UTI (Acute Cystitis, Acute Pyelonephritis), Mosquito borne diseases (Dengue, Malaria), Viral hepatitis and Typhoid.
- Some other conditions like Chorioamnionitis, TORCH infection etc can have dreaded feto-maternal complications.

Causes of fever in pregnancy can be divided into Infectious and Non- Infectious causes

Infectious Causes

Viral

- Cytomegalovirus
- Varicella-Zoster Virus
- Influenza Virus
- SARS-CoV-2
- Mumps Virus
- Measles Virus (Rubeola)
- Rubella Virus
- Parvovirus B19
- Other Respiratory Viruses causing common cold, pharyngitis, laryngitis, bronchitis, & pneumonia
- Dengue Fever
- Viral hepatitis
- HIV
- Zika Virus

Bacterial

- Group A Streptococcus - S. Pyogenes
- Group B Streptococcus - S. Agalactiae
- Urinary Tract Infection - E. coli, Klebsiella, Proteus mirabilis & Pseudomonas aeruginosa
- Listeriosis - Listeria monocytogenes
- Salmonellosis - Salmonella subtypes typhimurium and enteritidis
- Typhoid - Salmonella typhi
- Shigellosis
- Lyme Disease - Borrelia burgdorferi
- Tuberculosis
- Scrub typhus

Protozoal

- Toxoplasmosis - Toxoplasma gondii
- Malaria
- Amebiasis - Entamoeba histolytica

Others

- Chorioamnionitis
- Cholecystitis
- Cholangitis
- Parotitis

Causes of fever in pregnancy can be divided into Infectious and Non- Infectious causes

Non-Infectious Causes

Auto-Immune

- Systemic lupus erythematosus
- Hyperthyroidism
- Rheumatoid arthritis

Thromboembolic Events

- Deep Vein Thrombosis (DVT),
- Pulmonary Embolism (PE)
- Cerebral Thromboembolism

Others

- Dehydration
- Drug Induced
- Allergic Reaction

Causes of fever in Puerperium

- Mastitis, Breast Engorgement
- Breast Abscess
- Uterine Infection - endometritis, endomyometritis, and endoparametritis
- Perineal Infections
- Puerperal Sepsis
- Necrotizing Fasciitis
- Peritonitis and Adnexal Abscesses
- Parametrial Phlegmon
- Septic Pelvic Thrombophlebitis

Discuss the management of malaria in pregnancy

Introduction

- Malaria is a protozoal disease caused by the parasite belonging to the genus plasmodium. It spreads through the bite of female anopheles mosquito, blood transfusion and transplacental transfer from mother to fetus during pregnancy.

- The following causative organisms have been recognized - P. Vivax, P. Falciparum, P. Malariae, P. Ovale. The predominant causal organism in the South-East Asia region is **P . Vivax**, followed by P. Falciparum (accounting for nearly half mortality).

- The immuno-compromised state of mother renders her susceptible to Malaria. There is intense parasitisation (30%- 60% of cases) of the placenta blocking the intervillous space with macrophages and parasites. And there is diminished placental blood flow which is mostly seen with falciparum infection and in the second half of pregnancy.

Investigations

- **Microscopic (Gold standard)**
  - Peripheral blood smear
    - Thick (sensitive)
    - Thin (species identification)
- **Antigen detection - Rapid diagnostic tests**
  - MRDT-HRP-2/pLDH
- **PCR**
- **Antibody test**

Management

- Anaemia, hypoglycaemia, pulmonary oedema, and secondary infections due to malaria in pregnancy lead to problems for both the mother and the foetus.

- All efforts should be made to rapidly bring the temperature under control,
  - By tepid sponging (cold sponging causes cutaneous vasoconstriction and can result in core hyperpyrexia).
  - Antipyretics like paracetamol etc.

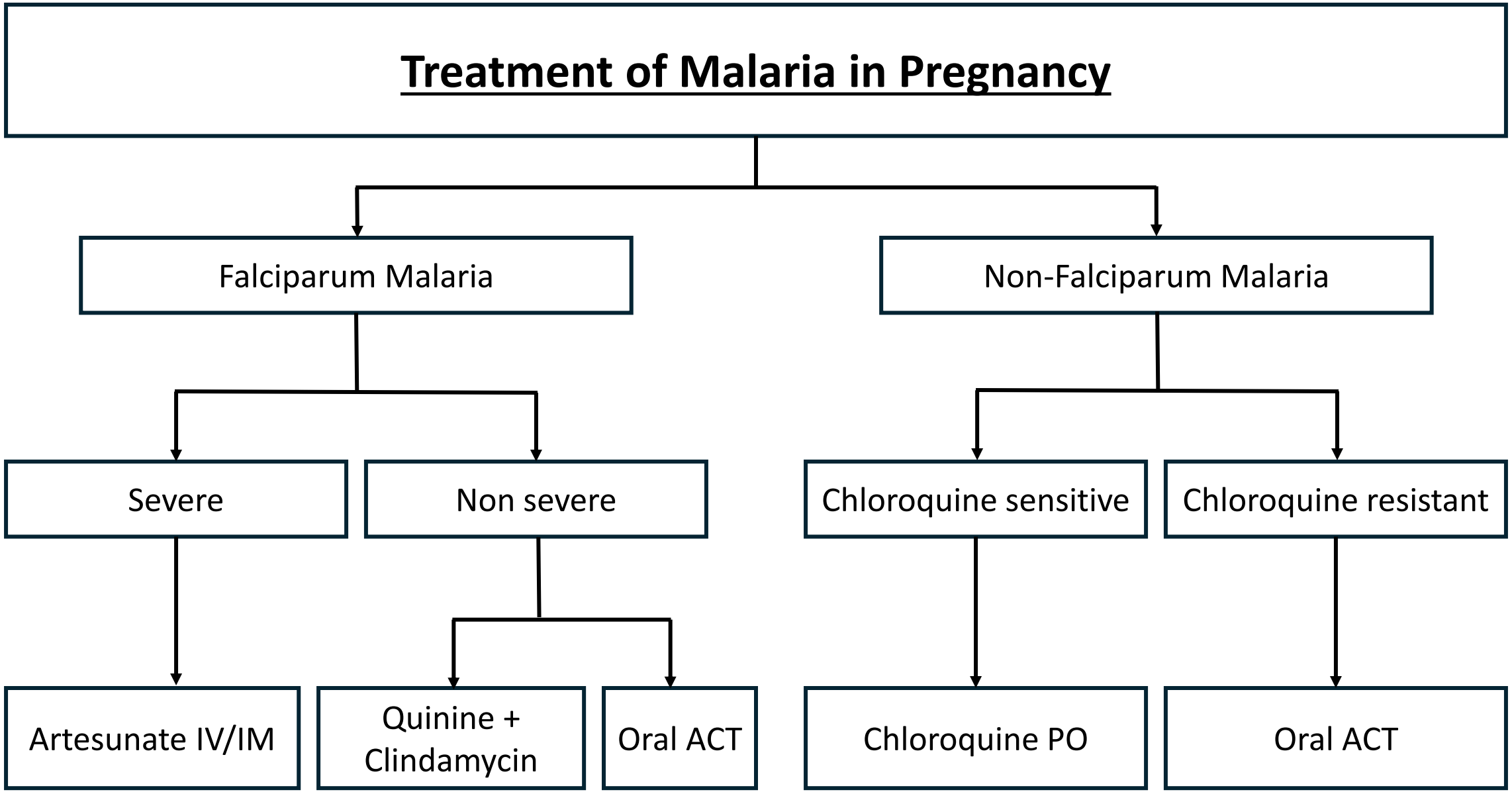
- Careful fluid management is also very important. Dehydration as well as fluid overload should be avoided, because both could be detrimental to the mother and/or the foetus.

- In cases of very high parasitemia, exchange transfusion may have to be carried out.

- If the situation demands, induction of labour may have to be considered.

- Once the patient is in labour, foetal or maternal distress may indicate the need to shorten the 2nd stage by forceps or vacuum extraction.

Treatment of Malaria in Pregnancy



Malaria	Causative Agent	Drug of choice
Uncomplicated malaria	P. vivax, P. ovale, P. malariae	Oral Chloroquine 600 mg f/b 300mg 48 hours later, day 2, day 3
	Resistant P. vivax	Follow P. falciparum
	P. Falciparum	Oral Quinine 600mg TDS + Oral Clindamycin 450mg TDS - 7 days (or) Atovaquone proguanil 4 tablets daily for 3 days
	Vomiting + P. falciparum	Quinine 10mg/kg in 5%D over 4 hours, later TDS + IV Clindamycin 450 mg TDS. Switch over to oral regimen when patient is stable
Severe malaria	Any species	IV Artesunate 2.4mg/kg at 0, 12, 24 hours and then daily. When patient is stable Artesunate oral 2mg/kg or IM 2.4mg/kg OD + Clindamycin. Else follow oral regimen for uncomplicated falciparum infection.
	Artesunate allergy	IV Quinine 20 mg/kg in 5% Dextrose over 4 hours f/b 10 mg/kg in 5% Dextrose over 4 hours, later TDS + IV Clindamycin 450 mg TDS. When patient is stable switch over to oral regimen.
Maintenance during pregnancy		Chloroquine 300 mg weekly till delivery
Maintenance after delivery		Withhold drugs for 3 months postpartum and perform G6PD testing
Recurrent malaria		Artesunate 2 mg/kg or 100mg + Clindamycin 450 mg TDS - 7 days

Chemoprophylaxis

- In endemic areas, two tablets of chloroquine (300 mg) are given once every week until six weeks after delivery.
- Mefloquine can be used in areas with chloroquine resistant strains.
- Use of protective clothing, mosquito repellants and use of mosquito net is recommended to avoid mosquito bites.
- Rapid control of fever and correction of iron and folic acid deficiency should also be initiated at the earliest. Folic acid should be given 10 mg per day.
- Regular and more frequent antenatal check-up is required, and foetal monitoring should be regularly done using ultrasound scan and non-stress test.