PREVALENCE OF MALARIA IN PREGNANCE

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CHAPTER ONE

Introduction

Malaria is a mosquito born infectious that affects humans. The infected mosquito bites spread the disease from one person to another which causes serious illness to humans which mostly causes death to most infected people. People who have malaria usually feel very sick with a high fever and shaking chills. To reduce malaria infections, world health programs distribute preventive drugs and insecticide-treated bed nets to protect people from mosquito bites. A partially effective vaccine is being piloted in a few African countries, but there is no vaccine for travelers.

Protective clothing, bed nets and insecticides can protect you while traveling. You also can take preventive medicine before, during and after a trip to a high-risk area. Many malaria parasites have developed resistance to common drugs used to treat the disease . Over the past 10 years, knowledge of the burden, economic costs, and consequences of malaria in pregnancy has improved, and the prevalence of malaria caused by *Plasmodium falciparum* has declined substantially in some geographical areas. Furthermore, studies outside of Africa have increased the evidence base of *Plasmodium vivax* in pregnancy.

Malaria remains one of the most preventable causes of adverse birth outcomes. Intermittent preventive treatment in pregnancy (IPTp) with sulfadoxine–pyrimethamine is used to prevent malaria, but resistance to this drug combination has decreased its efficacy and new alternatives are needed. Additionally, coverage of IPTp and insecticide treated nets continues to lag behind targets. The key barriers to uptake are well documented, and many are open to intervention.

Access to parasitological diagnosis or appropriate anti malarial treatment remains low in many countries and regions. Therefore, there is a pressing need for research to identify quality improvement interventions targeting pregnant women and health providers.

Malaria infection is a significant health problem with a substantial risk for the pregnant women. Her weight is mostly the result of p.falciparum in and it occurs in Africa.

Malaria infection make larger but unquantifiable contribution to low birth weight in infants in the developing world, severe maternal anemia and perinatal mortality. It is a major cause in morbidity and mortality in infant and children.

Malaria is dangerous to both the mother and fetus. Pregnant women are at greater risk of malaria infection and of symptomatic malaria disease than non-pregnant adults. They are more attractive to mosquitoes. Parasite densities are higher in pregnant women than in non-pregnant adults. In two studies, complexity of infections did not differ, whereas a third study showed an increase in young pregnant women. Together these studies suggest that the ability to limit parasite replication is impaired in pregnancy.

Malaria is most frequent in first pregnancy, peaking between 13 and 16 weeks, and declining toward term. Age may be an independent risk factor, as younger pregnant women have been found to be more susceptible to malaria in some settings. Adolescent and young adult women are more commonly parasitemicthan older adults, and this may reflect continuing development of malarial immunity. HIV infection increases susceptibility to malaria, resulting in more prevalent and higher-density infection, and a relative loss of gravidity-dependent immunity.

Where malaria transmission rates are low, maternal disease is often severe due to lack of pre-existing immunity. Non-immune pregnant women appear to be at higher risk of cerebral malaria and pulmonary edema than other adults. They also may experience increased risk for abortions and stillbirths. In settings of infrequent exposure to infection, malaria is equally dangerous to primi- and multigravidae. *P. vivax* infections also cause LBW and maternal anemia, albeit at lower rates than *P. falciparum*. In contrast, susceptibility to *P. malaria* and *P. ovale* does not increase in pregnancy. However, an early study in Vietnam (van Hung 1951, cited in) showed that both *P. vivax* and *P. malaria* cause abortions and preterm delivery in women with little immunity. Malaria is more common in pregnancy compared to the general population. Immuno suppression and loss of acquired immunity to malaria could be the causes.

In pregnancy, malaria tends to be more atypical in presentation. This could be due to the hormonal, immunological and hematological changes of pregnancy.

Due to the hormonal and immunological changes, the parasitemia tends to be 10 times higher and as a result, malaria tends to be more severe in pregnancy compared to the non-pregnant population. *M*alaria in pregnancy being more severe, also turns out to be more fatal, the mortality being double (13 %) in pregnant compared to the non-pregnant population (6.5%).

Some anti- malarial are contra indicated in pregnancy and some may cause severe adverse effects. Therefore the treatment may become difficult, particularly in cases of severe *P. falciparum* malaria.

Management of complications of malaria may be difficult due to the various physiological changes of pregnancy. Careful attention has to be paid towards fluid management, temperature control, etc. Also decisions regarding induction of labor may be difficult and complex. Foetal loss, IUGR, and premature labor are common.

PATHOPHYSIOLOGY

The Pathophysiolog of malaria in pregnancy is greatly due to the altered immunity and availability of a new organ called *placenta* in pregnancy. A dramatic breakdown of acquired immunity occurs in pregnancy, especially in primigravidae. (Paradoxically, fully effective antimalaria immunity is transferred to the child!) Various hypotheses have been put forth to explain the pathophysiology of malaria in pregnancy.

Hypothesis – 1: Loss of antimalarial immunity is consistent with the general immunosupression of pregnancy viz; reduced lymphoproliferative response, sustained by elevated levels of serum cortisol. This is designed to prevent the fetal rejection but renders the THOPYSIOLOGY
pregnant woman susceptible to infection. However, this does not explain the diminished susceptibility to malaria experienced by multigravid women.

Hypothesis – 2: What is lost is cell mediated immunity, but what is transferred is the passive antibody mediated immunity and therefore the pregnant mother suffers.

Hypothesis – 3: Placenta is a new organ in the primigravidae and allows the parasites to by-pass the existing host immunity or allows placenta specific phenotypes of *P. falciparum* to multiply. Development of placenta specific immunity may thus explain the decreased susceptibility in multigravidae.

Recently, it has been discovered that multigravid women can form strain-independent antibodies against CSA-specific parasites, and they demonstrate greatly diminished parasite load. The unique susceptibility of primigravids to placental infection can be explained by their immune inexperience with the parasite subpopulation.

PREGNANCY IN MALARIA AND INTENSITY OF TRANSMISSION

Clinical presentation and severity of malaria in pregnancy differ in areas of high transmission and low transmission due to differences in the level of immunity. In high endemic areas, acquired immunity is high, mortality is less common, asymptomatic and incidental parasitemia are not uncommon. Sequestration of MP in the placenta and long standing placental malaria occur and peripheral blood may be negative for MP. Higher parasitemia, particularly in II and III trimester; anemia and altered placental integrity result in less nutritional support leading to LBW, abortion, stillbirth, premature birth and low birth weight, and excess infant mortality/morbidity. These problems are more common in first and second pregnancies as the parasitemia level decreases with increasing number of pregnancy. HIV infection extends this to all pregnancies and makes it worse. The strategy for management of malaria in pregnant population in areas of high transmission include intermittent treatment and use of insecticide treated bed nets. In areas of low transmission, the problems are dramatically different. The risk of malaria infection during pregnancy is greater and can result in maternal death and spontaneous abortion in up to 60% of cases. Low birth weight can occur even in cases of treated malaria; however, silent malaria rather rare. The strategy involves measures to avoid malaria by ITMs/chemoprophylaxis and early diagnosis and prompt treatment of cases.

DIAGNOSIS OF MALARIA IN PREGNANCY

Microscopic test

The microscopic tests involve staining and direct visualization of the parasite under the microscope. For more than hundred years, the direct microscopic visualization of the parasite on the thick and/or thin blood smears has been the accepted method for the diagnosis of malaria in most settings, from the clinical laboratory to the field surveys. The careful examination of a well-prepared and well-stained blood film currently remains the "gold standard" for malaria diagnosis. The most commonly used microscopic tests include the peripheral smear study and the Quantitative Buffy Coat (QBC) test.

The simplest and surest test is the time honor peripheral smear study for malarial parasites. None of the other newer tests have surpassed the 'gold standard' peripheral smear study.

Peripheral study of malaria parasites

Light microscopy of thick and thin stained blood smears remains the standard method for diagnosing malaria. It involves collection of a blood smear, its staining with Romanowsky stains and examination of the Red Blood Cells for intracellular malarial parasites. Thick smears are 20–40 times more sensitive than thin smears for screening of Plasmodium parasites, with a detection limit of 10–50 trophozoites/μl. Thin smears allow one to identify malaria species (including the diagnosis of mixed infections), quantify parasitemia, and assess for the presence of schizonts, gametocytes, and malarial pigment in neutrophils and monocytes.

The peripheral blood smear provides comprehensive information on the species, the stages, and the density of parasitemia. The efficiency of the test depends on the quality of the equipment and reagents, the type and quality of the smear, skill of the technician, the parasite density, and the time spent on reading the smear. The test takes about 20 to 60 minutes depending on the proximity of the laboratory and other factors mentioned above. It is estimated to cost about 12 to 40 US cents per slide in the endemic countries.

Before reporting a negative result, at least 200 oil immersion visual fields at a magnification of 1000× should be examined on both thick and thin smears, which has a sensitivity of 90%. The

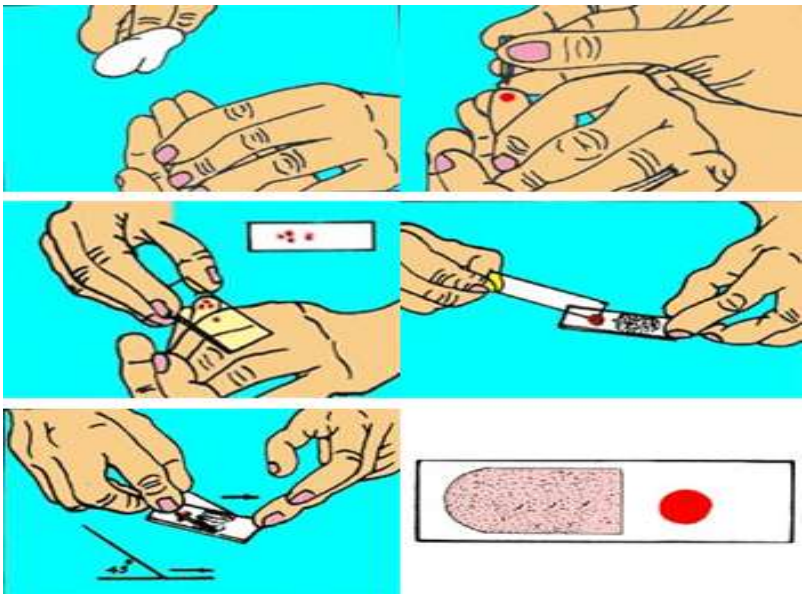
level of parasitemia may be expressed either as a percentage of parasitized erythrocytes or as the number of parasites per microliter of blood. In nonfalciparum malaria, parasitemia

Preparation of smear

rarely exceeds 2%, whereas it can be considerably higher (>50%) in falciparum malaria. In nonimmune individuals, hyperparasitemia (>5% parasitemia or >250 000 parasites/μl) is generally associated with severe disease.

The smear can be prepared from blood collected by venipuncture, finger prick and ear lobe stab. In obstetric practice, cord blood and placental impression smears can be used. In fatal cases, post-mortem smears of cerebral grey matter obtained by needle necropsy through the foramen magnum, superior orbital fissure, ethmoid sinus via the nose or through fontanelle in young children can be used.

Use universal precautions while preparing the smears for malarial parasites – use gloves; use only disposable needles/lancets; wash hands; handle and dispose the sharp instruments and other materials contaminated with blood carefully to avoid injury.



- Hold the third finger of the left hand and wipe its tip with spirit/Savlon swab; allow to dry
- Prick the finger with disposable needle/lancet; allow the blood to ooze out
- Take a clean glass slide. Take 3 drops of blood 1 cm from the edge of the slide, take another drop of blood one cm from the first drop of blood
- Take another clean slide with smooth edges and use it as a spreader and make thick and thin smears. Allow it to dry
- Slide number can be marked on the thin smear with a lead pencil

- **Thick smear:** The thick smear of correct thickness is the one through which newsprint is barely visible. It is dried for 30 minutes and not fixed with methanol. This allows the red blood cells to be hemolyzed and leukocytes and any malaria parasites present will be the only detectable elements. However, due to the hemolysis and slow drying, the plasmodia morphology can get distorted, making differentiation of species difficult. Thick smears are therefore used to detect infection, and to estimate parasite concentration.
- **Thin smear:** Air dry the thin smear for 10 minutes. After drying, the thin smear should be fixed in methanol. This can be done by either dipping the thin smear into methanol for

5 seconds or by dabbing the thin smear with a methanol-soaked cotton ball. While fixing the thin smear, all care should be taken to avoid exposure of the thick smear to methanol.

- **Staining:** A number of Romanowsky stains like Field's, Giemsa's, Wright's and Leishman's are suitable for staining the smears. Thick films are ideally stained by the rapid Field's technique or Giemsa's stain for screening of parasites. The sensitivity of a thick blood film is 5-10 parasites/µl. Thin blood films stained by Giemsa's or Leishman's stain are useful for specification of parasites and for the stippling of infected red cells and have a sensitivity of 200 parasites/µl. The optimal pH of the stain is 7.2.
- Slides should be clean and dry. It is better to use neutral distilled water

Thick films: The thick film is first de-hemoglobinised in water and then stained with Giemsa.

Rapid Giemsa: Prepare a 10% Giemsa in buffered water at pH 7.1. Immerse the slide in the stain for 5 minutes. Rinse gently for 1 or 2 seconds in a jar of tap water. Drain, dry and examine.

Standard Giemsa: Prepare a 4% Giemsa in buffered solution at pH 7.1. Immerse the slide (at least 12 hours old) in stain for 30 minutes. Rinse with fresh water, drain, dry and examine.

Thin films: Thin film examination is the gold standard in diagnosis of malarial infection.

Giemsa stain:

Fix with 1-2 drops of methanol. Cover the film with 10% Giemsa stain and leave for 30 minutes, wash with distilled water, drain, dry and examine.

Leishman's stain:

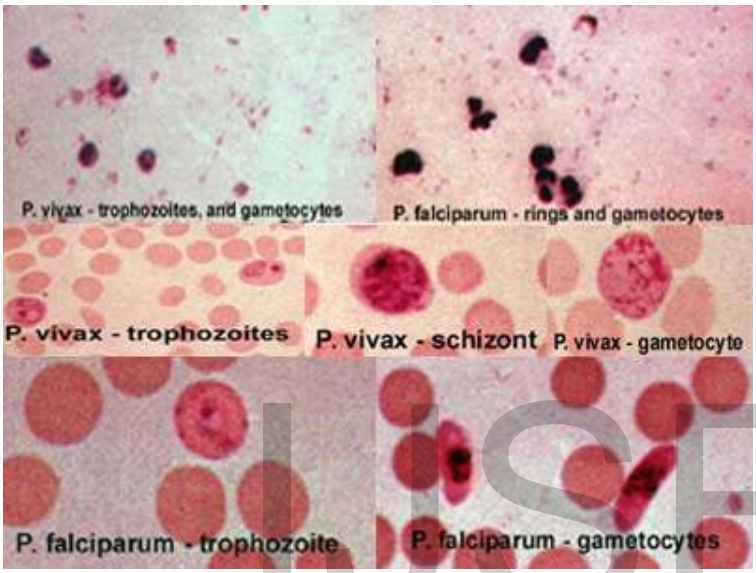
Add 7-8 drops of the stain and leave for 1-2 minutes. Then add 12-15 drops of buffered distilled water, mix thoroughly, leave for 4 – 8 minutes. Then wash off with clean water, drain, dry and examine.

Jaswant Singh Battacharya (JSB) Stain for thick and thin films:

This is the standard method used by the laboratories under the National Malaria Eradication Programme in India.

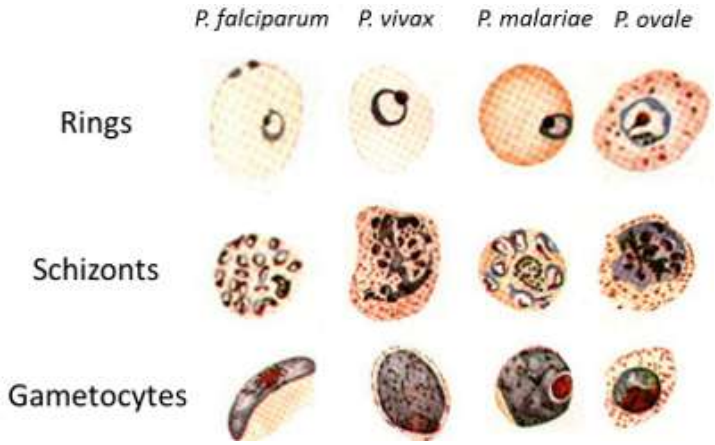
Preparation of the stain:

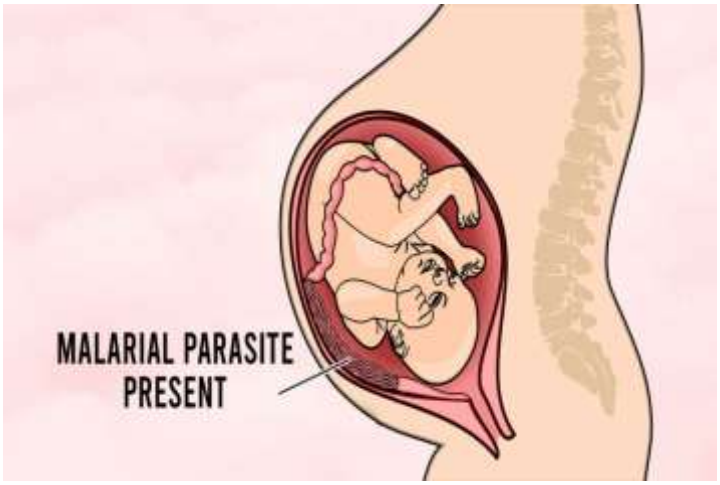
JSB I stain: Medicinal methylene blue (0.5 g) is dissolved in 500 ml of distilled water and 3 ml of 1% sulphuric acid (H_2SO_4) is gradually added, followed by 0.5 g of potassium dichromate ($K_2Cr_2O_7$) when a purple precipitate forms. 3.5 g of disodium hydrogen phosphate dihydrate ($Na_2HPO_4.2H_2O$) is next added and when the precipitate has dissolved, the solution is boiled in a flask with a reflex condenser for 1 hour.



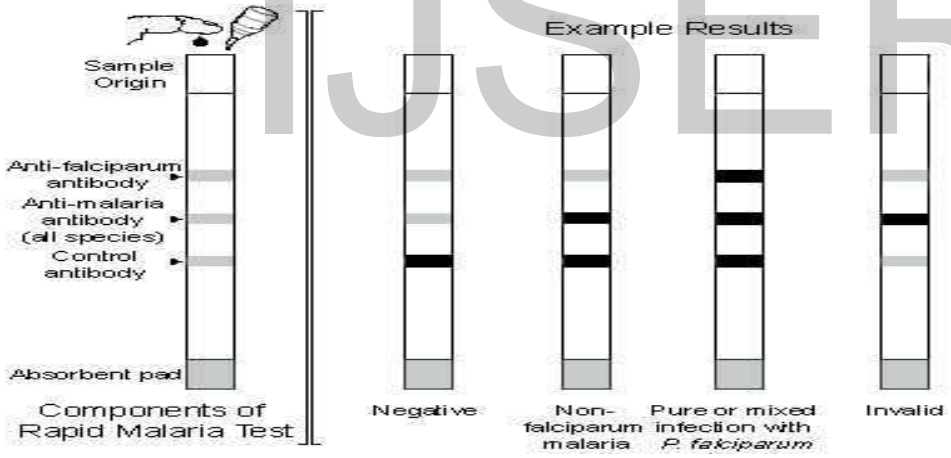
JSB stain under microscopic examinatin

Differentiation of malaria parasites

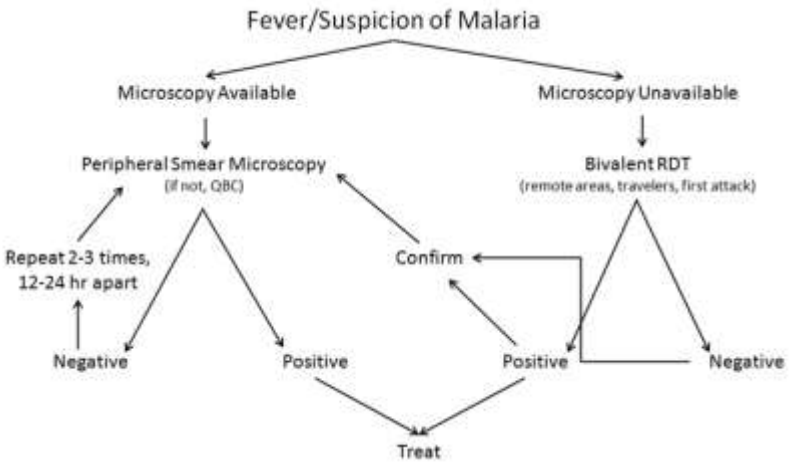




Malaria parasite present in pregnancy



Rapid test results of malaria



COMPLICATION OF MALARIA IN PREGNANCY

Anemia

: Malaria can cause or aggravate anemia. It could be due to the following causes:

1. Hemolysis of parasitised red blood cells.
2. Increased demands of pregnancy.
3. Profound hemolysis can aggravate folate deficiency.

Anemia due to malaria is more common and severe between 16-29 weeks. It can develop suddenly, in case of severe malaria with high grades of parasitemia. Pre existing iron and folate deficiency can exacerbate the anemia of malaria and vice versa.

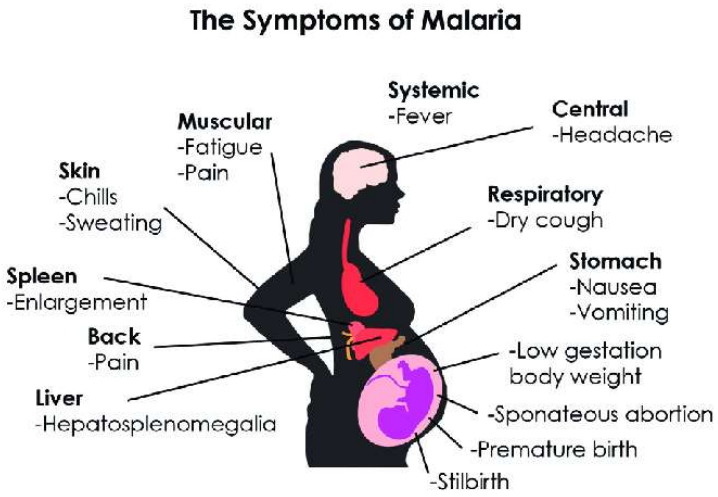
Anemia increases perinatal mortality and maternal morbidity and mortality. It also increases the risk of pulmonary oedema. Risk of post-partum haemorrhage is also higher.

Significant anemia (Hemoglobin <7-8 g%) may have to be treated with blood transfusion. In view of the increased fluid volume in pregnancy, it is better to transfuse packed cells than whole blood. Rapid transfusion, particularly whole blood, may cause pulmonary oedema

Symptoms

Signs and symptoms of malaria may include:

- Fever
- Chills
- General feeling of discomfort
- Headache
- Nausea and vomiting
- Diarrhea
- Abdominal pain
- Muscle or joint pain
- Fatigue
- Rapid breathing
- Rapid heart rate
- Cough



MANAGEMENT OF MALARIA IN PREGNANCY

Management of malaria in pregnancy involves the following three aspects and equal importance should be attached to all the three.

1. Treatment of malaria
2. Management of complications
3. Management of labour

TREATMENT OF MALARIA

Treatment of malaria in pregnancy should be energetic, anticipatory and careful.

Energetic

- Don't waste any time.
- It is better to admit all cases of *P. falciparum* malaria.
- Assess severity- General condition, pallor, jaundice, BP, temperature, hemoglobin, Parasite count, SGPT, S. bilirubin, S. creatinine, Blood sugar.

Anticipatory

Malaria in pregnancy can cause sudden and dramatic complications. Therefore, one should always be looking for any complications by regular monitoring.

- Monitor maternal and fetal vital parameters 2 hourly.
- RBS 4-6 hourly; hemoglobin and parasite count 12 hourly; S. creatinine; S. bilirubin and Intake / Output chart daily.

Careful

The physiologic changes of pregnancy pose special problems in management of malaria. In addition, certain drugs are contra indicated in pregnancy or may cause more severe adverse effects. All these factors should be taken into consideration while treating these patients.

- Choose drugs according to severity of the disease/ sensitivity pattern in the locality.
- Avoid drugs that are contra indicated
- Avoid over / under dosing of drugs
- Avoid fluid overload / dehydration
- Maintain adequate intake of calories

Anti malarial drugs

All trimesters:

Chloroquine; Quinine

2nd trimester:

Mefloquine; Pyrimethamine / sulfadoxine; Artesunate / Artemether / Arteether

3rd trimester:

Mefloquine; Pyrimethamine / sulfadoxine; Artesunate / Artemether / Arteether

Contra indicated:

Primaquine; Tetracycline; Doxycycline; Halofantrine

MANAGEMENT OF COMPLICATION

Acute Pulmonary Oedema:

Careful fluid management; back rest; oxygen; diuretics; ventilation if needed.

Hypoglycemia:

25-50% Dextrose, 50-100 ml I.V., followed by 10% dextrose continuous infusion. If fluid overload is a problem, then Inj. Glucagon 0.5-1 mg can be given intra muscularly. Blood sugar should be monitored every 4-6 hours for recurrent hypoglycemia.

Anemia: Packed cells should be transfused if hemoglobin is <5g%.

VACINE AGAINST MALARIA IN PREGNANCY

Although a general malaria vaccine appears to be a distant possibility, there is much hope for a vaccine against placental malaria. The administration of excessive soluble CSA to pregnant women has proven to drastically reduce parasite adhesion; however, in excess levels, this soluble protein is severely nephrotoxic. Studies have demonstrated that the administration of chondroitinase AC can effectively reduce parasite adhesion by 95%. This preliminary data is being further tested in combination with therapeutic use of monoclonal antibodies to CSA

HOW TO CONTROL MALARIA IN PREGNANCY

Prevention and control of malaria during pregnancy

- The WHO recommends a three-pronged approach for prevention and control of malaria in pregnant women;
  - Use of insecticide treated nets (ITNs) to prevent infection
  - Intermittent Preventive Treatment (IPT)
  - Effective management and prevention of malaria illness [26,27].

Research Objectives

This study is on the prevalence of malaria in pregnancy and it was done specifically to find out

I. At what period do most pregnant women contact malaria
II. Which age group of women mostly contracted malaria during pregnancy
III. Which drug comes in mind when pregnant women contract malaria
IV. Do most pregnant women normally seek medical attention when contracted malaria

CHAPTER TWO

LITERATURE REVIEW

In studying the prevalence of malaria in pregnancy, several theories as well as literatures were reviewed to help delve deeper into the topic for better understanding.

Literatures

Pregnant women are more likely than nonpregnant women to become infected with malaria and to have severe infection. The effects of malaria during pregnancy include spontaneous abortion, preterm delivery, low birth weight, stillbirth, congenital infection, and maternal death. Malaria is caused by the four species of the protozoa of the genus Plasmodium, which is transmitted by the bite of the female Anopheline mosquito, congenitally, or through exposure to infected blood products. This article reviews the epidemiology, pathology, clinical symptoms, diagnosis, and treatment of malaria in pregnant women. Interventions to prevent malaria include intermittent preventive treatment, insecticide-treated nets, and case management of malaria infection and anemia. Current national and international trends in antibiotic resistance are becoming a public health crisis. Multi-drug resistant organisms are more prevalent in hospital settings and, alarmingly, are now being identified in the community. Over-reliance on broad-spectrum antibiotics, as well as inappropriate prescribing practices, play a significant role in encouraging the emergence of resistant organisms. This article reviews the mechanisms of bacterial resistance, current trends in national and international antibiotic resistance, and examines approaches to combat pathogens while sparing benign microbes.

Intra-amniotic infection (IAI), or chorioamnionitis, complicates up to 10% of all pregnancies and up to 2% of labors at term. There is a significant risk of complications for the mother and the neonate following IAI, including sepsis and pneumonia. In addition, there is a correlation between IAI and premature rupture of membranes, preterm premature rupture of membranes, preterm labor, and preterm birth. Research in the last decade has also revealed a complex and significant association between IAI and cerebral palsy and other central nervous system damage in both the preterm and term fetus. Timely diagnosis and treatment of IAI can significantly reduce the risk of both maternal and neonatal complications. https://www.sciencedirect.com/science/article/abs/pii/S1526952308000020

Malaria is caused by the parasite plasmodium which can be spread to humans through the bite of an infected mosquito. Of the five types of plasmodium (P. Falciparium, P.Ovale, P. Malaria, P. Vivax and P. Knowlesi), the plasmodium falciparium is the deadliest and affects the lives of almost 40 per cent of the world's population with pregnant women and children under-five years of age being the most affected. This mini-review involved the collation of findings from recent studies in regards to the prevalence of malaria infection among pregnant women and infants. A systematic analysis of recent literature on the prevalence of malaria in pregnancy from many authors was carried out and the facts synthesized to make an easy read. From the analysis of literature, Ten Thousand women and 200,000 babies were reported to be dying annually from complications of malaria in pregnancy which recorded a prevalence of 85 per cent in sub-Saharan Africa. More so, Fifty per cent of pregnant women were discovered to be carrying plasmodium falciparium in their placenta without even experiencing malaria signs/ symptoms, and this development was reported to have been responsible for Twenty per cent of stillbirths and 11 per cent of all maternal deaths. Malaria infection is considered a major threat to the lives and well-being of pregnant women and infants. Therefore, stakeholders should ensure that every clinical diagnosis of malaria in pregnancy is confirmed with a laboratory plasmodium falciparium-based diagnosis before the administration of antimalarial drugs. Furthermore there should be a stepping –up on the distribution of insecticide treated nets alongside enlightenment of pregnant women on ways of preventing mosquito bite. Instituting the aforementioned approaches is key to improving the health- seeking behaviour of pregnant women in particular and the wider population in general thus enabling them to stay malaria free throughout the period of pregnancy and infancy.

Research Questions

Based on the research objectives and the reviewed literatures, the following research questions were formulated

I. At what period do most pregnant women contact malaria
II. Which age group of women mostly contracted malaria during pregnancy
III. Which drug comes in mind when pregnant women contract malaria

IV. Do most pregnant women normally seek medical attention when contracted malaria

CHAPTER THREE

METHODOLOGY

3.1. Introduction

According to Leedy and Ormrod (2005:12), research methodology is "the general approach the researcher takes in carrying out the research project; to some extent, this approach dictates the particular tools the researcher selects. This chapter aims at providing a explanation to research outcomes.

3.2. Research Design

A research design is a "plan or blueprint of how one intends to conduct research" (Thyer as quoted by Fouché & De Vos, 1998:123; Mouton, 2001:55).The design of the study is descriptive in nature. Descriptive research aims to accurately and systematically describe population, situation or phenomenon as it answers what, where, when and how questions by using a wide variety of research methods to investigate one or more variables. Unlike other research design like experimental research, the researcher does not control or manipulate any of the variables in the study when using descriptive design.

3.3. Sources of Data Collection:

The study was conducted using primary sources data as it is collected by me during the study and was intended only for this study. Gathering information from primary source is a priority.

3.4. Population of the study

The population of the study which is the actual people where the study sample was drawn was in hospital Amritsar(Punjab).

3.5. Sample and Sampling Method

Specifically; the sample was drawn from Amritsar. In total, 40questionnaires were distributed of which 30 fully answered.

3.6. Research Instrument

Considering the topic and its objective, the study found it appropriate to employ the use of questionnaire which is closed-ended to fasten the process of gathering the data that are relevant to the study.

3.7. Procedures

After the questionnaire was designed, and accepted by my supervisor, I went out to a certain hospital in Amritsar to conduct the research.

3.8. Tools of data analysis and presentation:

In analyzing the data, both descriptive and analytical approaches were used.

CHAPTER 4

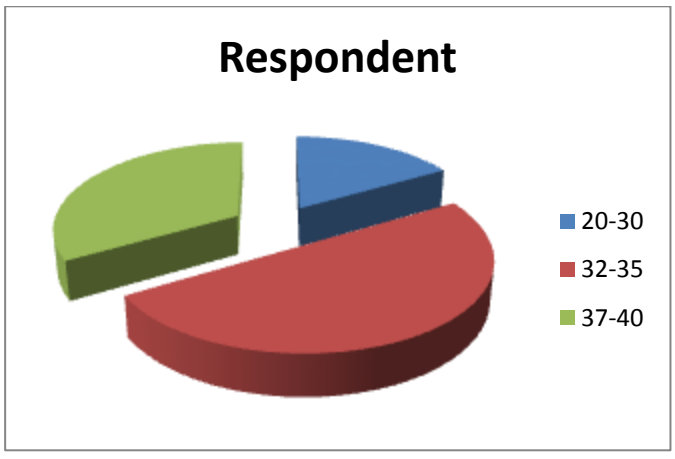
DATA ANALYSIS AND INTERPRETATION

This chapter analyzed the data retrieved from the 30respondents. The chapter is based on the analysis data on respective questionnaires that correspond to the various objectives set under this study.

Questionaire

Age group respondent

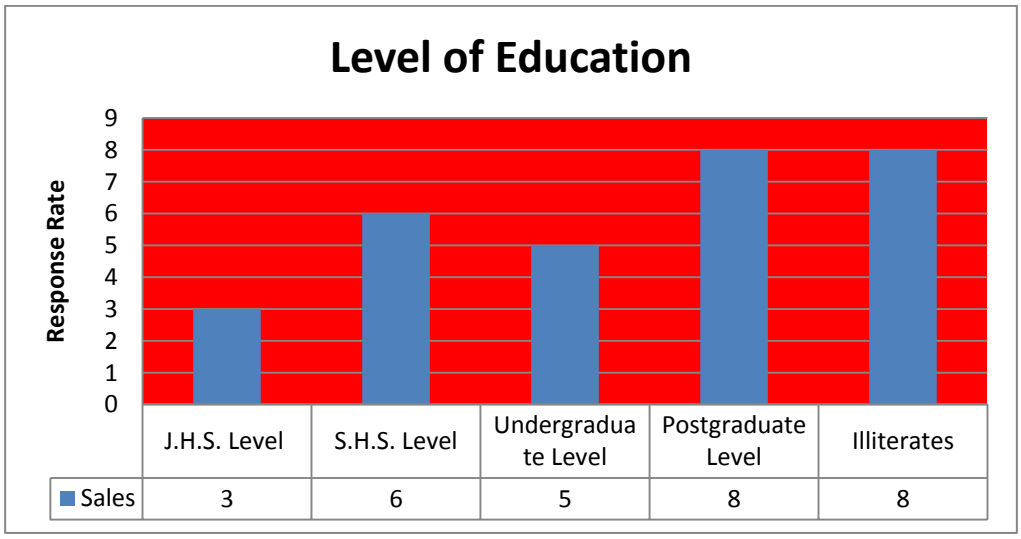
Age group	Number of respondent	Percentages%
20-30	5	16.6%
32-35	15	50%
37-40	10	33.4%



Interpretation: From the table and bar chart above, it was found out that, out of the 30respondents, majority of 15 representing 50% are age group of 32-35Whiles 10 respondents representing 33.4% are 37-40 with 5 respondents representing 16.6% belonging to age group 20-30

Level of Education

Education	Number of Respondents	Percentage
Junior High School Level	3	10%
Senior High School Level	6	20%
Undergraduate Level	5	16.6%
Postgraduate Level	8	26.7%
Illiterate	8	26.7%

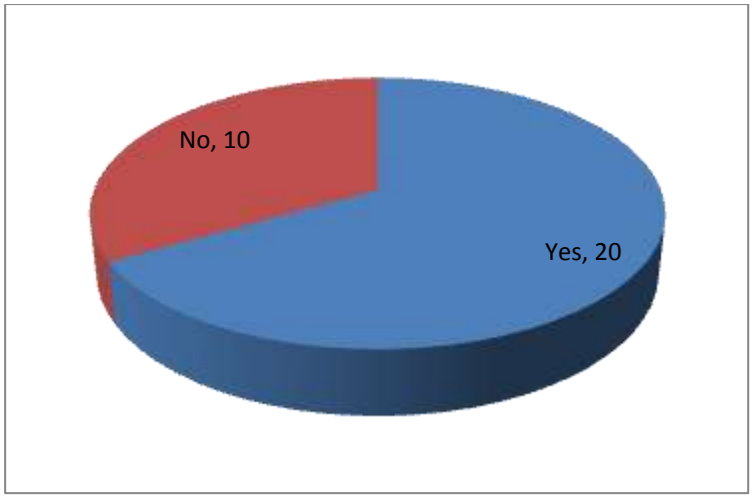


From the table and bar chart above, 3 people with percentage rate of 10% had attained Junior High School Education; with 6 representing 20% have Senior High School Education. Also majority of 8 people representing 26.7% have postgraduate education whiles 5 people with percentage rate of 16.6% having undergraduate level education and 8 people with representing 26.7% being illiterates, thus have never been in school.

Willingness' of people to seek medical attention when contracted malaria in pregnancy.

The questionnaire that relates to the above asked : will you be willing to seek medical attention when you infected with malaria in pregnancy.

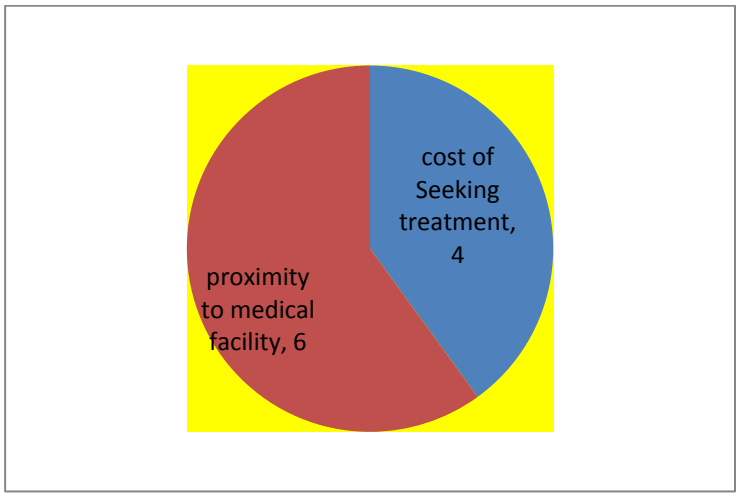
Willingness to seek medical treatment when contracted malaria in pregnancy.	Number of Respondents	Percentage
Yes	20	66.7%
No	10	33.3%



From the table and pie chart above, it indicated that majority of the respondents indicated they will seek medical attention when ever contracted with malaria during pregnancy. This is because the total of 20 people out of the 30 respondents representing 66.7% affirmed their readiness to seek medical attention when they contract malaria as the remaining 10 people representing 33.3% indicated they will never seek medical attention when contracted with malaria in pregnancy.

Reasons for not seeking medical attention when contracted STDs

Reasons for not willing to seek medical attention when contracted with STDs	Number of Respondents	Percentage
Cost of seeking treatment	4	40%
Proximity to medical facility	6	60%



The table and graph above indicated that, out of the total number of 10 people who indicated they will not voluntarily seek medical treatment when infected with malaria during pregnancy, 4 of them representing 40% cited cost of seeking treatment as the main reason for not seeking medical

treatment on malaria with 6 people representing 60% indicated proximity to medical facility as the reason that deter them from seeking medical treatment on malaria.

Most common malaria drug known by women who have been infected with malaria before during pregnancy.

Drugs	**Number of Respondents**	**Percentage**
Quinine	12	40%
chloroquine	7	23.3%
doxycline	11	36.7%

CHAPTER 5

FINDINGS OF THE STUDY

- After thorough analysis of data retrieved from the research participants the following summarized findings were ascertained: Even though malaria in pregnancy is a serious that mostly affected pregnant women but there are some common medicine that are mostly use to treat malaria in pregnancy such drugs are chloroquine, doxycline ,quinine etc.
- Even though other age group contract malaria the age group that mostly contract malaria in pregnancy are within the age bracket of 32 to 35 years.
- It was also found out that, majority of people indicated they feel reluctant to seek medical treatment when they get malaria during pregnancy.
- It was also ascertained that, feel reluctant to seek medical treatment due to proximity to medical facility.

CHAPTER 6

DISCUSSION, RECOMMENDATIONS AND CONCLUSION OF THE STUDY

Discussion

Primarily, the study was to delve deep into the prevalence of malaria in pregnancy .Many objectives informed this scholarly research as the study found out the commonest malaria in pregnancy in women. Knowing how people feel ease to seek medical treatment is very imperative, as such, the study found how willing people avail themselves to medical treatment when they contracted malaria.

It must be stated clearly that, malaria in pregnancy is a major problem globally which affecting many developed countries. Major attention should be based on it to find the possible for pregnant women from malaria.

Recommendations

Based on the findings of this study and comparing it with other studies, the following pragmatic measures are suggested to help mitigate the prevalence of malaria in pregnancy.

- There must be National policy and program that is geared towards malaria in pregnancy prevention.
- The Health Service through the ministry of Health must liaise with National Commission for Civic Education to design malaria in pregnancy sensitization program.
- Government must construct more medical facilities such as hospitals, polyclinics clinics, health centres in the various communities

- People must also be educated to willingly avail themselves to medical treatment when they contract malaria to prevent malaria in pregnancy related complication on their life.

Conclusion

The study which general delve into the prevalence of malaria in pregnancy ascertained majority of pregnant women are infected with the malaria infection. Indeed it came to light that, Doxycyclin, chloroquine and quinine are the most common and best drugs used by people who contract malaria. It must be emphasized that, the age group between 32 to 35 years who are seen as the most malaria infected people. There is a damming revelation from this study that suggest that most people thus, 60% of the total respondent stated emphatically they infected with the malaria infection. People are reluctant to seek medical care when contracted malaria as cost of seeking medical treatment as well as proximity to medical facilities are seen as obstacles.

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