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Research Article

**STUDY OF THE EFFECTS OF MALARIA INFECTION IN
NEONATAL PERIOD AND ITS MATERNAL AND FETAL
OUTCOME**¹Dr. Zainab Waheed, ²Dr. Tooba Sohail, ³Dr. Khaula Younus²THQ Hospital Kharian²Aziz Bhatti Shaheed Teaching Hospital, Gujrat³Lahore General Hospital**Abstract:**

Objective: To investigate malaria infection effects during pregnancy in neonatal period.

Study Design: A retrospective cohort study.

Place and Duration: The study was carried out in Obstetrics and Gynecology Department of Services Hospital, Lahore for the period of one year from February 2016 to February 2017.

Methods: Female patients with 1-year incidence of premature births, low birth weight (DDA) incidence from 2016-2017, 29 males and 29 females who delivered (IUGR) were selected for the same period without malaria. pregnant women delivered in Hospitals.

Findings: Patients with malaria had greater risk of preterm labor a 3.1 times ($p = 0.14$). Anemic chances of anemic were higher (95% CI = 1.6-5.4, RR = 2.9) and hemoglobin lower mean level at significant levels when compared to women who had no disease 0.0001 p value. Low birth weight infants ($p = 0.001$) are because of Maternal malaria was significantly associated. Infants born to a pregnant woman with malaria has mean birth weight of 461 grams ($p < 0.0005$). However, there was no relationship significantly between IUGR and malaria infection in pregnancy ($p = 0.33$).

Conclusion: In pregnancy Malaria infection is associated with poor fetal and maternal outcomes. It is associated significantly with maternal anemia and low birth weight neonates. For this reason, appropriate measures should be taken during pregnancy to prevent malaria, in endemic areas especially.

Key words: *Malaria, Pregnant women, premature birth, neonatal period.*

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INTRODUCTION:

In many parts of the world one of the most important health problems is Malaria, 40% of the population in world is effected to this disease which Kill a million people a year. There are four types of malaria parasites (Plasmodium), *P. vivax*, *P. falciparum*, *P. malaria* and *P. ovale* that affect people. *P. falciparum* causes complications such as black fever, anemia, tropical splenomegaly syndrome, cerebral malaria and systemic shock syndrome (algitis and malaria) and is more complicated. *P. vivax* infects new RBCS and consequently causes a light disease. *P. malaria* and *P. ovale* are rare infection. In Pakistan today major health problem is Malaria. It is one of the leading causes of deaths which can be prevented if controlled in the country. In Pakistan, annual frequency of malaria is 63 in 100,000 in 2013. Malaria infection is epidemic in this country and is seen from July to August. Malnutrition outbreaks occurred in Pakistan, in 1989-1990 in N.W.F.P. and in 1975 in Punjab. Pregnant women increase the plaque increase risk due to the cell-mediated immunity depression. Malaria in pregnancy can lead to mother, fetus expulsion or an inanimate birth. Low birth weight is also defined as one of the effects of the fetus on the stomach. Pregnancy outcomes are widely assessed in sub-Saharan Africa, an endemic region that is critical for disease. However, in this sub-region of India, some work has been done which is an unbalanced area for dust transfer. To determine the effects of malaria during malaria in our region and in newborn mothers this study was performed.

PATIENTS AND METHODS:

This retrospective cohort study was carried out in Obstetrics and Gynecology Department of Services Hospital, Lahore for the period of one year from February 2016 to February 2017. The hospital records for 1 year (2014-2015) identified 70 women who were diagnosed during pregnancy with malaria. 35 women from selected were moved to other place and their records could not be reached. No more than

two women were found during the data collection. Four women with malaria (the end of your pregnancy before the 20th week of pregnancy) have lost their jobs. For this reason, in the group the number of women infected with malaria were 29. All women were diagnosed with malaria due to the spread of thick peripheral blood and only live babies remained. In Nishter Hospital, sixty-six women who were not in Multan were selected as unexposed groups during the same period. Through a structured questionnaire the data were collected with maternal gravida status, age and hemoglobin level documented at birth. To observe the birth weight at birth of the newborn Maternal records were used. Anemia was defined as hemoglobin (Hb) < 10 g / dL. Women with an Hb < 7 g / dl were taken as very anemic. Preterm births before the 37th gestational week were accepted. Below 2500 g weight at birth was defined as Low birth weight. In gestational age Infants who were less than 10% of the weight expected were accepted as intrauterine growth retardation. With Epi Information Statistical analysis was performed . To compare the averages Student t test was used. Using a Chi-square test the ratios were compared (when using the adjusted yacht value). Less than 0.05 P value was considered significant statistically.

RESULTS

29 women during pregnancy who had malaria were labeled as the exposed group and were delivered to the Nishter Hospital, Multan. (72.4%) 21 women had *P. falciparum* infection and 8 (27.6%) had peripheral *P. vivax vivax*. Women in the exposed group has average age of the (25.9 ± 5.1 years, 18-43 years) and (26.0 ± 4.7 years, 16-40) in the unexposed group with 0.91 P value. (51.7%) 15 women were primigravid in the malaria group and in the group unexposed to Malaria 28 (42.4%) (p = 0.54). Malaria infected women are more likely to be 2.7 times more likely than women without exposed (95% CI = 0.9-8.2, RR = 2.7 ,0.14 P) (Figure 1).

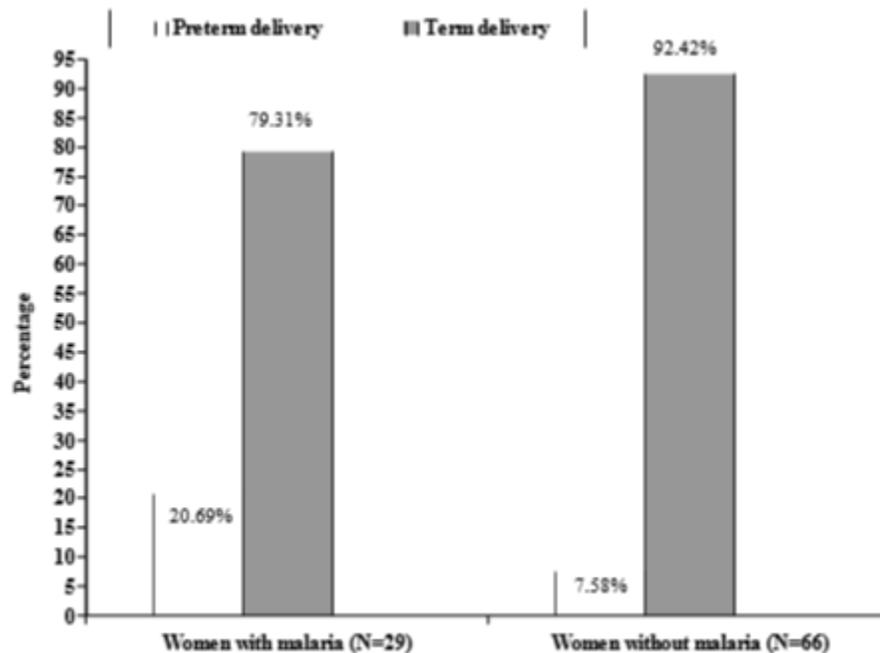


Figure 1. Percentage of term and preterm deliveries in pregnant women with and without malaria.

Mothers infected with Malaria are more probably to be more anemic than mothers who are uninfected uninfected (RR = 2.9, 95% CI = 1.6-5.4, $p = 0.0015$) (Figure 2). (range = 14.0 9.1, 11.2 ± 1.2 g / dL) were significantly lower than the untreated group (9.6 ± 1.9 g / dL, range = 5.7) in the exposed group. ($p = 0.0001$).

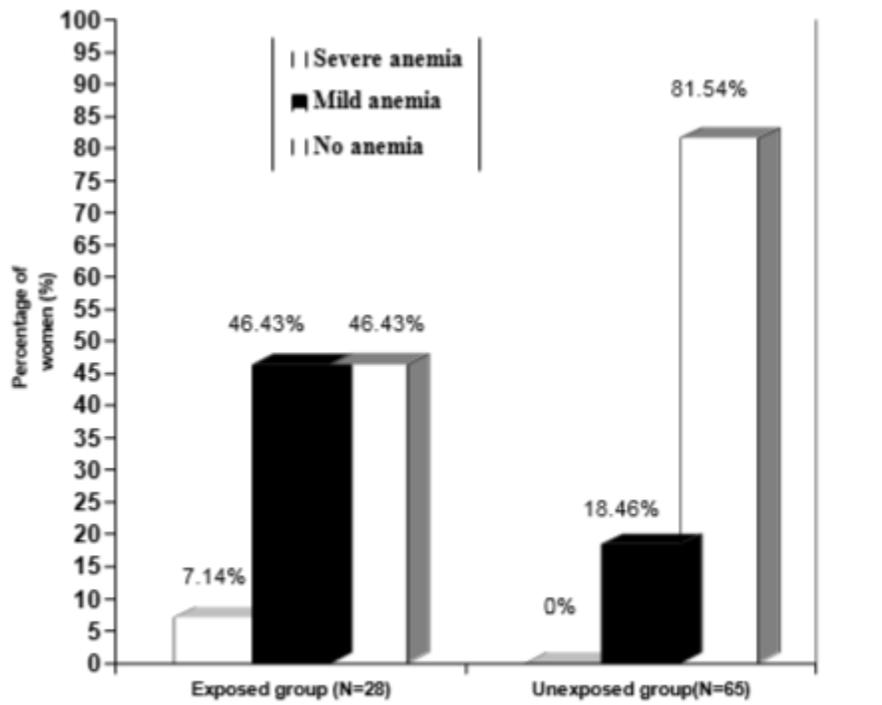


Figure 2. The percentage of women with severe ($Hb < 7$ g/dL), mild ($7 \leq Hb < 10$ g/dL) and no anaemia ($Hb \geq 10$ g/dL) in the two groups.

Hb levels in both groups were not available for women. Low birth weight neonate weights were significantly higher

in malaria patients (RR = 5.8, 96% CI = 2.0-17., p = 0.001) (Figure 3).

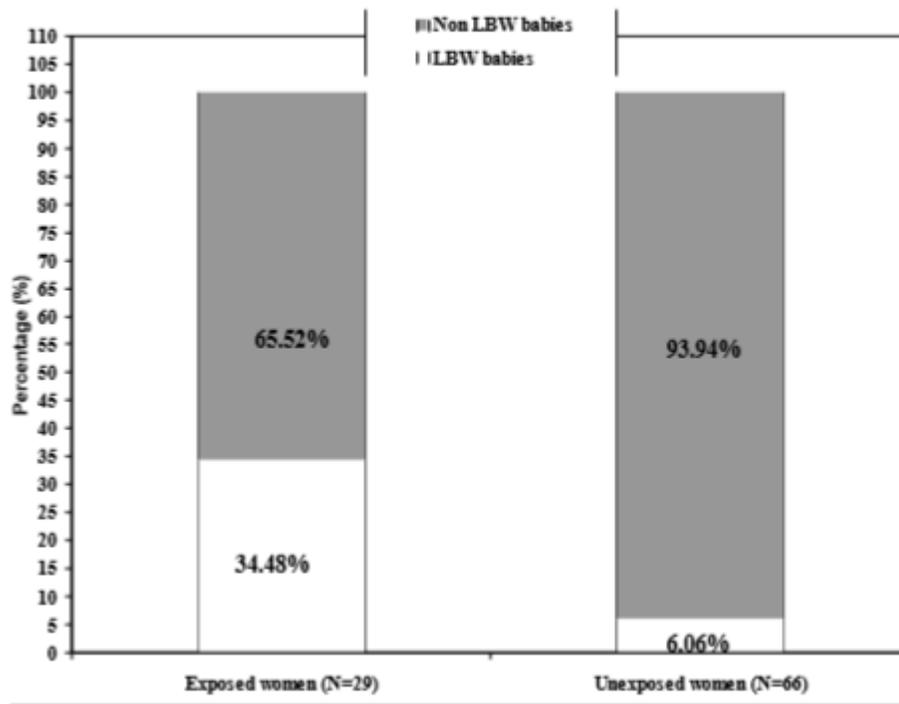


Figure 3. Percentage of low birth weight babies in the exposed and unexposed women.

In antenatal infants the average birth weight was compared to 2620.9 g (SD = 610.6, range = 1600-3900) when compared to 3081.8 g (SD = 424.9, range = 2200-4000). The difference in mean values was significant statistically with 0.0005 P value). Mothers Infected with Malaria were 3.4 times more than mothers who are uninfected (RR = 3.5, 96% CI = 0.7-20.04) to IUGR (Figure 4).

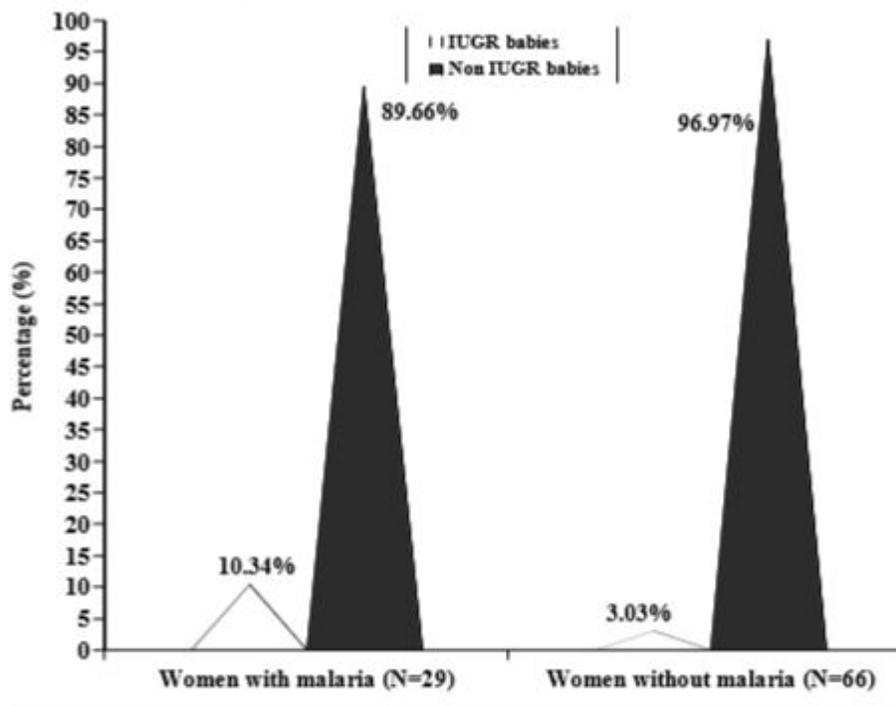


Figure 4. Proportion of babies with IUGR born to women with and without malaria.

However, this relationship was not statistically significant with 0.33 P value .

DISCUSSION:

This study provided important information about the malaria effects on patients on their mothers and infants. During pregnancy Women with malaria are more likely to be early onset (PTD). However, this relationship was not significant statistically. These results are similar to Malawian study in which there is no association between prenatal clinical malaria and/ or maternal parasitemia and PTD. The anemia was significantly more in our study in infected mothers compared to infection free mothers. This is sufficient for the results of some studies in India and Sub-Saharan Africa . Other studies proves that primates are only associated with anemia in primitive mothers. However, our data have not been analyzed separately for primipara and multigravidae. Malaria may cause hematocrit and anemia of red blood cells due to hematopoiesis suppression. However, anemia in pregnancy has several causes such as iron deficiency, folate deficiency, malnutrition and hemoglobinopathies. In our study, these factors are unchecked and make it difficult to assess the contribution of maternal infection to SITs in exposed women. The Hb mean level (1.64 g / dL) in the two groups was found to be significant of our study. Other investigators found no significant difference in mean Hb levels of the two groups. In this Study it is proven that there was a strong relationship between birth weight during pregnancy and malaria. This is consistent with other related studies. In our study, there is an average difference of 470 grams, in other studies the birth weight is higher. Decrease in the average birth weight of single newborns. Sierra Leone and Indian mothers obtained 124 g, 270.7 g and 350 g, respectively. For low birth weight in infected mothers various hypotheses have been proposed. Malaria parasites can infect placenta, which causes the placenta and fibrin to accumulate, which makes it difficult to transport oxygen and nutrients to the fetus. Maternal anemia, pre-pregnancy age and nutritional status may also be due to low birth weight infants. We could not control these factors at work. For this reason our findings are limited to possible mixed factors. We did not find a significant association between malaria infection and IUGR. This contradicts a study reporting a significant association between parasitemia and / or prenatal clinical malaria and IUGR (OR = 5.13, 95% CI = 1.4-19.4). In both groups there were some infants with IUGR, which could reduce the power of our efforts to detect compilation. Maternal anemia and low birth weight are the main contributing factors to maternal and neonatal mortality, respectively.

CONCLUSION:

In our study, it was suggested that there was a strong association between maternal anemia and malaria during pregnancy and in newborns with low birth weight. Efforts should be made during pregnancy to prevent malaria with mosquito nets or mosquito nets. This may have a positive effect on the survival of children and their mothers in areas where malaria is rare.

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