



Study of the Epidemiological and Clinical Characteristics of Malaria in Pregnant Women at the CSREF of Commune IV in the District of Bamako

Boubakary Guindo^{1*}, Ousmane Dantoumé Toure¹, Nagou Tolo¹, Dramane Diabate¹, Moctar Diaby¹, Bouroulaye Diarra¹, Mahamoudou Coulibaly², Sema Keita³, Moussa Dembele¹, Alou Samake⁴, Brehima Boly Berthé⁵, Zoumana Cheick Berete⁶

¹BOCAR SIDY SALL University Hospital Center, Kati, Mali

²Kalabancoro Reference Health Center, Kati, Mali

³Fana Reference Health Center, Koulikoro, Mali

⁴Commune VI Reference Health Center, Bamako, Mali

⁵Medical and Surgical Center of the Armies of Bamako (CMCAB), Mali

⁶Department of Teaching and Research in Public Health, Bamako, Mali

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*Corresponding author: Boubakary Guindo

BOCAR SIDY SALL University Hospital Center, Kati, Mali

Abstract

Original Research Article

Malaria prevention relies on monthly administration of sulfadoxine pyrimethamine in Intermittent Preventive Treatment (IPTp -SP) from the thirteenth week to delivery. We conducted a retrospective cross-sectional study with an evaluative aim going from the 1st January to December 31, 2019 in the Reference Health Center of Commune IV during the study, our sampling was exhaustive covering all the files of pregnant women with a diagnosis of malaria on pregnancy during the year 2019. The objective general was to describe the epidemiological and therapeutic characteristics of malaria in pregnant women. Of 166 pregnant women, 52 tested positive for thick smear (31.32%). The most affected age groups were those under 30 with 61.5%. Nearly 53.3% of pregnant women did not participate in ANC and more than 61.5% had not received any sulfadoxine-pyrimethamine prophylaxis dose during pregnancy. The pauci gestures and primigestes were the most infected, representing respectively 50% and 26.9% of the cases. The most common clinical signs were fever (40.4%), abdominal pain (28.8%) of pregnant women. Anemia was found in 57.7% of pregnant women. Injectable artemether, injectable artesunate and quinine, ACTs and tablet quinine were used respectively in 38.5%, 26.9%, 5.8% and 3.8% of malaria cases in pregnant women as stipulates the technical guidelines of the National Malaria Control Program. **Conclusion:** The management was in accordance with the guidelines of the National Protocol for the Fight against Malaria on the therapeutic level.

Keywords: Malaria, Pregnant women, Commune IV.

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INTRODUCTION

Malaria infection during pregnancy poses a health risk to the mother, and can lead to her death. Malaria during pregnancy also affects the health of the fetus and can lead to premature birth and low birth weight [1]. Studies have shown that pregnant women are four times more likely to contract malaria and twice as likely to die from it. The primigravida and the second igest are the most affected [2]. According to the World Malaria Report, the total number of malaria cases was estimated at 229 million in 2019 [3]. In 2018, the WHO

African Region accounted for 93% of all malaria cases [4]. During the 2019 period, the population of sub-Saharan Africa accumulated more than 90% of the global malaria burden. Globally, the total number of malaria-related deaths was estimated at 409,000 in 2019, an estimated 11.6 million pregnant women living in 33 countries in Africa with moderate to high transmission were infected with malaria (35% of all pregnancies). As a result, an estimated 822,000 children are born underweight in these countries [4]. Every year in Africa more than 30 million women become pregnant in areas with high malaria transmission and substantial

risks. Malaria infection during pregnancy is still a public health problem. Malaria is responsible for approximately: 20% of low birth weight, 35% of low birth weight 200,000 newborn deaths, 100,000 newborn deaths in Africa are due to low birth weight and 3-5% neonatal deaths [5]. In Mali in 2018, a total of 3,572,794 suspected cases were recorded. Of these suspected cases 3457,267 (97%) were tested and 2,345,481 (66%) tested cases were confirmed. In 2018, there were 227,976 suspected cases of malaria in pregnant women, of which 217,715 were tested (96%) with a confirmation rate of 51.47% [6]. Malaria and pregnancy are two mutually aggravating situations. Indeed, malaria is more serious and more frequent during pregnancy, causing a significant maternal, fetal and perinatal morbidity and mortality. The effects of malaria are highly variable depending on the level of immunity of the subject. Indeed, repeated antigenic stimulation due to continual mosquito bites leads to a certain degree of immunity due to IgG, having a specificity for variant surface antigens. Also the consequences will be different depending on whether the woman is immunized or not. Febrile seizures can cause abortion at the beginning or premature delivery at the end of pregnancy. It is essentially in the case of malaria contracted at the end of pregnancy that an infestation of the fetus can occur, causing congenital malaria (10% of births of children of women suffering from malaria). In the absence of diagnosis and rapid treatment, the prognosis is reserved for the mother and the fetus, the evolution can be rapidly fatal [7]. The National Malaria Control Program (PNLP) has set up treatment plans at the different levels of the health pyramid. The responsibility of the prescriber is to use antimalarials early, at the right doses for confirmed cases of malaria, respecting the contraindications in order to reduce the morbidity and mortality of malaria as well as the emergence of new resistance. Despite the ongoing restoration of these treatment regimens, malaria in pregnancy is still a public health problem [15]. We propose to conduct an observational study to determine the epidemiological, clinical and therapeutic characteristics in pregnant women.

METHODOLOGY

This was a retrospective cross-sectional study, with an evaluative aim, which took place from January 1st December 31, 2019 at the Commune IV Reference

Health Center. Were included, any record of pregnant woman received in consultation, having tested positive for malaria and having benefited from an antimalarial treatment.

Were not included any file of pregnant woman received in consultation, having not been tested positive for malaria and not having benefited from an antimalarial treatment. Word processing and tables were carried out using Word 2016 software. Data analysis was carried out using SPSS version 25 software.

RESULTS

During this study we found 5110 files, among which 166 pregnant women had performed a thick drop, of which 52 presented a positive thick drop, i.e. 31.32% (52/166). Most of the pregnant women were married 98.1% and the 20-29 age group was the most represented at 61.5%. Half of the women are not educated, that is 50%, and they were housewives in 69.23% (Table 1). The peaks are observed during the months of October, August and February with respectively 21.15%, 15.38% and 13.46% (Figure 1). More than half of the pregnant came on her own, ie 55.8% (Table 2). The predominant reasons for admission were fever and abdominal pain with respectively 40.4 % and 28.8% (Table 3). The third and second quarters are the most represented with 63.5% and 21.2%. Primiparous and pauci parous are much more represented with respectively 48.1% and 38.5%. More than half of the pregnant women had no dose of SP, ie 61.54%, and they did not have an ANC (prenatal consultation) in 53.8% (Table 4). The temperature between 37.5°-38° was the most predominant, i.e. 63.5% (Table 5). Injectable Artemether accounted for 38.5 % of treatments. Quinine infusion and Artesunate injection, which both accounted for 26.9% of treatments. Cases of uncomplicated malaria in the first trimester were treated with quinine tablets for 7 days, from the second to the third trimester were treated with the artemisinin-based combination therapy (CTA) for 3 days. Severe malaria cases were treated with quinine infusion, Artesunate and injectable Artemether for 7 days (Table 6). More than half of the pregnant women were hospitalized, i.e. 69.2% (Table 7). Premature delivery and associated anemia were the most common complications with 30.8 % and 28.8% (Table 8).

Table 1: Sociodemographic characteristics of patients

Age groups	not	%
≤ 19 years old	10	19.2
20 - 29 years old	32	61.5
30 - 39 years old	10	19.2
Marital status		
Bride	51	98.1
Fiancee	1	1.9
Educational level		
No schooling	26	50.0
Primary	12	23.1

Secondary	10	19.2
Superior	4	7.7
Residence		
Commune II	1	1.9
Commune III	1	1.9
Commune IV	35	67.3
Commune V	1	1.9
Others	14	26.9
Occupation		
Household	36	69.2
employee	1	2.0
Trader	6	11.5
Pupil / student	4	7.7
Others	5	9.6

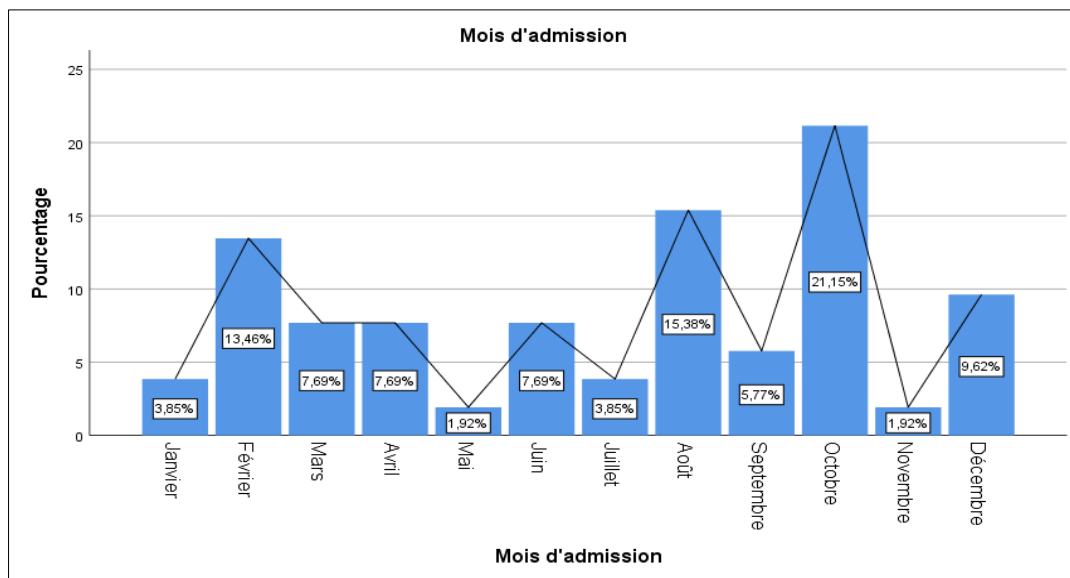


Figure 1: Evolution of malaria cases in pregnancy according to the months of the year 2019
* Practices, Medical clinics

Table 2: Distribution of pregnant women according to mode of admission

Mode of admission	Frequency	Percentage
Come by itself	29	55.8
His parents	5	9.6
His Doctor	3	5.8
Referred by the CSCOMs	9	17.3
His Midwife	2	3.8
Others	4	7.7
Total	52	100

Table 3: Distribution of pregnant women according to reasons for admission

Reasons for admission	Frequency	Percentage
Fever	21	40.4
Headaches	9	17.3
Abdominal pain	15	28.8
Vomiting	1	1.9
Spontaneous bleeding	3	5.8
Asthenia	1	1.9
epistaxis	1	1.9
Vertigo	1	1.9
Total	52	100

Table 4: Distribution of pregnant women according to the age of pregnancy, parity and taking SP

Pregnancy age	not	%
First trimester	5	9.6
Second trimester	11	21.2
Third trimester	33	63.5
Unspecified	3	5.8
Parity		
Primiparous	25	48.1
Pauci parries	20	38.5
Multipara	3	5.8
Grand multiparous	4	7.7
ANC performed		
Yes	24	46.2
No	28	53.8
Taking IPTp - SP		
No dose	32	61.5
1 dose of SP	7	13.5
2 doses of SP	9	17.3
3 Doses of SP	4	7.7

Table 5: Distribution of pregnant women according to body temperature

Temperature	Frequency	Percentage
37.5°-38°	33	63.5
38.5°-39°	18	34.6
39.5°-40°	1	1.9
Total	52	100

Table 6: Distribution of pregnant women according to treatment

Antimalarials	Frequency	Percentage
Injectable Quinine in Infusion	14	26.9
Injectable IM artemether	20	38.5
Injectable artesunate	14	26.9
quinine comp	1	3.8
CTA	3	5.8
Total	52	100

Table 7: Distribution of pregnant women according to their follow-up method

Hospitalized	Frequency	Percentage
Yes	36	69.2
No	16	30.8
Total	52	100

Table 8: Distribution of pregnant women according to complications

Complications of malaria on pregnancy	Frequency	Percentage
Threat of abortion	7	13.5
Threat of premature delivery	16	30.8
Anemia	15	28.8
None	14	26.9
Total	52	100

DISCUSSION

Socio-demographic data, during the study we found a prevalence of 31.32%. THERA, DEMBELE and TOGO [9-11] found 35.5%, 28.84 and 14.60% respectively. The study showed that the 20-29 age group was the most represented with 61.5%. A.TOGO and BAGAYOKO [11, 12] who had taken the same age group of 20-29 years with respectively 57% and 38.8%

these results are lower than that found by NIMAGA [8] who took the age group 20-38 years with 71.2%. In Mali, as in developing countries, the level of education of the population is low, especially with regard to women. During our study, it appeared that 50% of pregnant women did not go to school. This illiteracy rate is higher than that of COULIBALY [2] who found 48.5% and lower than those of BARRY, KONATE [13,

14] who found 80.66% and 69.85% respectively. uneducated women . In our report, a first peak is observed in October and a second in August with 21.2% and 15.4% respectively. In this regard, a study states that in Mali [15], the seasonal transmission zone is 4 to 6 months long from June to November with a rainfall of 1250 mm of water per year.

Clinically, the study showed that fever and abdominal pain were respectively 40.4% and 28.8% of the reasons for admission. TRAORE and TRAORE [17, 18] had found in their study that fever represented respectively 43.5% and 48.37 % of the reasons for admission. DEMBELE [16] had found in his study that the most common reasons for admission were fever and abdominal pain with 91.8% and 77.9%.98.1%. In our study, primiparous and pauci parous are much more represented with respectively 48.1% and 38.5%. TRAORE [17] had found in his study that primiparous 29.34%. During the study we found that malaria is much more frequent in the third and second trimester of pregnancy with respectively 63.5% and 21.2%. TRAORE [17] had found that the second trimester of pregnancy was highly represented, i.e. 30.4%. HOWEVER, BAGAYOKO, TOGO and DJAMY [8, 11, 12] had found that the majority of pregnant women were either in their second or third trimesters of pregnancy. According to the literature [16] malaria is much more frequent in the second and in the third trimester of pregnancy.

At the follow-up level, the study showed that the pregnant women did not perform the CPN (Prenatal Consultation) in half of the cases, ie 53.8%. DEMBELE [16] had found in his study a higher result, ie 96.7%. In sub-Saharan Africa, about two thirds of women visit an antenatal care unit at least once during their pregnancy, which provides a unique opportunity to provide prevention or treatment [16].

At the therapeutic level, on the preventive level, more than half of the pregnant women had not done the prevention of malaria because they were seen in consultation in the 1st trimester of their pregnancy. Indeed more than half of the pregnant women seen in the second trimester of their pregnancies 61.5% had done the prevention of malaria by taking sulfadoxine-pyrimetamine (SP). On the curative level, injectable artemether 80 mg was the most used, ie 38.5%, followed by injectable Artesunate 60 mg and quinine infusion, which both represented 26.9%. Other authors Djamy and DEMBELE [8, 16] found 32.50% and 30% respectively. However, DEMBELE [16] had found that ACTs, quinine salt infusion and Artemether were used with 61.5%, 41.8% and 23.1% respectively, unlike TOGO [11] in his study. Who had found 100% for the use of quinine in pregnant women this could be explained by the fact that Artemether 80 mg and Artesunate 60 mg are the first-line treatments from the second trimester of pregnancy according to the

technical guidelines of the PNLP. During the study, therapeutic practices complied with the technical guidelines of the national malaria control program (PNLP) through compliance with the guidelines. Indeed, any case of uncomplicated malaria in pregnant women must be treated by tablet or injectable quinine during the 1st trimester and severe cases of malaria complicated by Artesunate or Artemether or injectable quinine by infusion as indicated in the PNLP technical guidelines [12].

In terms of maternal and fetal prognosis, in our study pregnant women had a threat of premature delivery in 30.8% DJAMY and THERA [8, 9] in their study found respectively 22.50% and 13.4% of cases. This would mean that pregnant women did not consult early for better care and do not perform prenatal consultations correctly. In addition, true anemia of pregnancy is characterized by a hemoglobin level of less than 10 g/dl. During our study we looked for anemia through the hemoglobin level and the staining of the conjunctivae. The majority of our pregnant women were moderately stained with 42.3% and a hemoglobin level greater than 10 g/dl. In 57.7% of cases we observed a hemoglobin level below 10 g/dl and 21.2% of cases of conjunctival pallor. Djamy [8] in his study had found that 22.50% of cases were anemic; the majority of patients had a hemoglobin level above 10g/dl, ie 77.50%.

CONCLUSION

At the end of our study, it appears that the prevalence of malaria in pregnancy is estimated at 31.32%. The method of diagnosis of malaria used was the thick drop. The 20-29 age group was the most represented, ie 61.5% of cases. Injectable artemether, injectable artesunate and quinine, ACTs and tablet quinine were used respectively (38.5%, 26.9%, 5.8% and 3.8%) of cases of malaria in pregnant women as stipulated in the technical guidelines of the PNLP. More than half of pregnant women were taken care of by interns (65.4%), midwives (19.2%) and gynecologists (15.4%). The main complications encountered during our study were premature delivery, anemia and late abortions.

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