Open Access Library Journal
2024, Volume 11, e11755
ISSN Online: 2333-9721
ISSN Print: 2333-9705

Febrile Conditions in Pregnant Women at the Selingue Reference Health Center

Cheick Oumar Kamissoko[1*], Coulibaly Moustapha[1], Camara Daouda[2], Diakité Sounkalo[3], Keita Kaly[4], Diarra Ibrahima[1], Sangaré Younoussa[1], Drago Amadou[5], Berthé Amadou[5], Tapily Hassana[6], Tall Mohamed[1], Traoré Youssouf[7]

[1]Sélingué Reference Health Center, Sikasso, Mali
[2]Kati Reference Health Center, Koulikoro, Mali
[3]Regional Health Directorate of Sikasso, Sikasso, Mali
[4]Department of Internal Medicine, Point G Hospital, Bamako, Mali
[5]Commune Reference Health Center I, Bamako, Mali
[6]Koutiala Reference Health Center, Sikasso, Mali
[7]University Hospital Center Gabriel TOURE, Bamako, Mali
Email: *cheickmissoko85@gmail.com

How to cite this paper: Kamissoko, C.O., Moustapha, C., Daouda, C., Sounkalo, D., Kaly, K., Ibrahima, D., Younoussa, S., Amadou, D., Amadou, B., Hassana, T., Mohamed, T. and Youssouf, T. (2024) Febrile Conditions in Pregnant Women at the Selingue Reference Health Center. *Open Access Library Journal*, **11**: e11755.
https://doi.org/10.4236/oalib.1111755

Received: May 28, 2024
Accepted: July 27, 2024
Published: July 30, 2024

Abstract

Introduction: Pregnancy is a semi-allogeneic transplant which results in an increased susceptibility of the pregnant woman to infections. Fever, whatever its etiology, can cause complications for the mother and the fetus. In the absence of a previous study report, we initiated this study to make our contribution to the reduction of maternal and neonatal morbidity and mortality in Mali. Our study aimed to study febrile conditions in pregnant women admitted for consultation at the Sélingué Reference Health Center (CSRéf) in order to determine the etiologies and the feto-maternal prognosis. **Methods:** This was a descriptive cross-sectional study involving six thousand pregnant women admitted to the CSRéf de Sélingué from January 1 to December 31, 2018. Proportions, and mean ± standard deviation were calculated using Epi Info 7.2.5. **Results:** We found 100 reported cases of fever, representing a prevalence of 1.67%. The majority of pregnant women were housewives with 70.41% and 80% were married. The main reasons for consultation were fever in all patients and urinary problems in 57% of patients. Malaria remains the dominant febrile pathology (43%) followed by pyelonephritis (21%) and salmonellosis (6%). Six cases of HIV/AIDS disease were diagnosed. Anemia was the main maternal complication with 4% of cases. Prematurity 13%, fetal death in utero 6% and fetal hypotrophy 3% were the main fetal complications. **Conclusion:** Febrile states during pregnancy are common, the main etiologies are dominated by malaria and urinary infection. The maternal-fetal prognosis is marked by significant maternal-fetal morbidity. We recommend that providers educate

pregnant women about the early use of prenatal consultation services.

Subject Areas

Gynecology & Obstetrics

Keywords

Fever, Pregnancy, Maternal-Fetal Prognosis, Sélingué

1. Introduction

Fever can be defined as a repeated or persistent rise in temperature from 38˚C in a pregnant woman at rest in a normal environment. It is linked to an increase in the temperature level in the body set by the thermoregulatory centers [1].

Hyperthermia is an excessive build-up of heat.

Fever is the most frequent symptom common to many conditions. It is in fact one of the easiest clinical signs to observe in both humans and animals. This is why the fact of measuring the central temperature, a commonplace gesture within everyone's reach, is of capital importance for guiding the practitioner toward a diagnosis.

Fever is generally considered to be present in pregnant women when the core body temperature reaches or exceeds 38˚C [2].

Hyperthermia during pregnancy is, along with the occurrence of metrorrhagia, the most common cause of consultation for a pregnant woman [3]. Studies carried out on conditions likely to cause fever in pregnant women should be considered based on their frequency and potential seriousness.

Thus in the literature the frequency of urinary infections is 5 - 10% of pregnancies [4].

This frequency does not show a great disparity in Africa and the rest of the world; the frequency of fever during labor was 2% in 1996 in the gyneco-obstetrics department of South Lyon.

This entity as well as toxoplasmosis, listeriosis and appendicitis in association with pregnancy have not been the subject of particular study in our country Mali.

Every day, at least 1600 women die from complications of pregnancy or childbirth, which represents 585,000 female deaths each year [5].

The majority of these deaths, almost 90%, occur in Asia and sub-Saharan Africa, about 10% in other developing regions, and at least 1% in the developed world.

Maternal mortality figures are highest in West Africa, with more than 1000 women dying for every 100,000 live births.

At the Orangers maternity ward in Morocco, this frequency is one case per 1000 pregnancies [6]. In the section of isolated hyperthermia during pregnancy, listeriosis is the most serious. Very rare disease, *i.e.* 10 - 15 cases per approximately one million inhabitants in industrialized countries. In developing countries it is impossible to say whether the infection exists without being diagnosed

or, on the contrary, does not exist.

A very common tropical disease, the association of malaria and pregnancy has a frequency of 5.6 - 48% according to the author [7].

In Ivory Coast in 1989, studies carried out by AMINON A. showed that urinary infection occurs in 7.29% of pregnant women [8].

In Senegal, in 2004 studies carried out by OUMAR B. [9] showed that malaria infection occurred in 27.59% of pregnant women, in Nigeria 15.08 to 33%, in Uganda (Kampala) 5.6%, in Ghana 43.7%, in Ivory Coast (Cocody) 37% [10].

Toxoplasmosis is most common in hyperthermia with warning signs because 80% of women of childbearing age have toxoplasmic seroconversion [11]. As for hyperthermia of obstetric origin, these are fairly rare complications.

For TOGO A. in the Gyneco-Obstetrics department of the Point-G Hospital in Mali the frequency of urinary infection in pregnant women was 7.99% [12].

Second place would be occupied by febrile abdominal syndromes of which appendicitis is the most prevalent in the world, *i.e.* one case per 1500 pregnancies [13].

Fever, whatever its etiology, can cause complications for the mother and the fetus, namely: premature birth, delayed intrauterine decline, abortion, in utero death, and early neonatal death.

Given the sometimes serious complications, the search for a precise etiology during pregnancy must be systematic. It requires an ECBU, a thick film, a blood culture, a vaginal sample, a blood count (CBC-ESR) etc.

The frequency and seriousness of this association explain why a lot of work is devoted to it throughout the world [14].

Few studies have been carried out on febrile states in pregnant women in Mali, the work of TOGO A., KOUMA B., DEMBELE H. Pierre M. COULIBALY, MOUSSA F. BERTHE respectively on the association pyelonephritis and pregnancy, the association of urinary infection and pregnancy, malaria and pregnancy, fever in pregnancy have shown that among infections in pregnant women, urinary infection is the most common and that malaria is the most widespread tropical disease.

We propose to study these febrile states in pregnant women in the Gyneco-Obstetrics department of the Sélingué reference center with the following objectives.

2. Methodology

Sélingué reference health center.

This was a descriptive and qualitative cross-sectional study with prospective data collection.

Data collection took place from January 1 to December 31, 2018.

It was made up of pregnant women who presented an axillary temperature greater than or equal (≥) to 38 at the Gyneco-obstetrics department of the CSRef of Sélingué.

Data processing was carried out using Word and Epi info 2008 versions

software.

3. Results

Out of a sample of 6000 pregnant women, we encountered 100 cases of fever, representing a prevalence of 1.67% (See Figure 1).

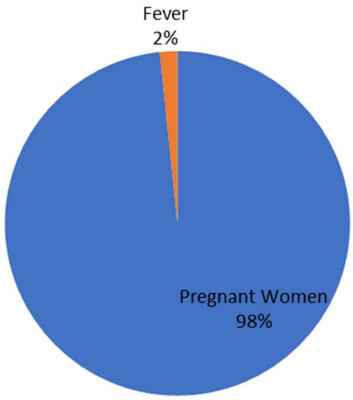

Figure 1. Number of fever cases.

The 20 - 25 year old age group was in the majority with 33% followed by the 26 - 30 year old group (See Table 1).

Table 1. Distribution of pregnant women according to age group.

Age range	Frequency	Percentage
<20 years	20	20.0
20 - 25 years old	33	33.0
26 - 30 years old	27	27.0
31 - 35 years old	16	16.0
36 - 40 years old	3	3.0
>40 years	1	1.0
Total	100	100

Housewives were the most represented with 70.41% of patients (See Table 2).

Table 2. Distribution of pregnant women according to profession.

Occupation	Frequency	Percentage
Seamstress	4	4.08%
Official	2	2.04%
Household	69	70.41%
Saleswoman	16	16.33%
Others	7	7.14%
Total	100	100

The Malinkés were in the majority with 47.42% (See Table 3).

Table 3. Distribution of pregnant women according to ethnicity.

Ethnic group	Frequency	Percentage
Bambara	17	17.53%
Bozo	10	10.31%
Dogon	6	6.19%
Malinke	46	47.42%
Peulh	10	10.31%
Soninke	6	6.19%
Others	2	2.06%
Total	100	100

The majority of our patients, 71%, were seen in outpatient clinics (See Table 4).

Table 4. Distribution of pregnant women according to mode of admission.

Admission method	Frequency	Percentage
External consultation	71	71.0
Hospitalized	9	9.0
Not referred	4	4.0
Referred	16	16.0
Total	100	100

Multi gestures were the most represented with 37% (See Table 5).

Table 5. Distribution of pregnant women according to gestation.

Gesture	Frequency	Percentage
Great multi gesture	10	10.0
Multi gesture	37	37.0
Pauci gesture	28	28.0
Primigest	26	26.0
Total	100	100

Multiparous women were the majority with 38% of our patients (See Table 6).

Table 6. Distribution of pregnant women according to parity.

Parity	Frequency	Percentage
Large multiparous	9	9.0
Multiparous	38	38.0
Pauci parries	23	23.0
Primiparous	30	30.0
Total	100	100

Only 15% of our patients have a history of abortion (See Table 7).

Table 7. Distribution of pregnant women according to the existence of a history of abortion.

Abortion	Frequency	Percentage
No	85	85.0
Yes	15	15.0
Total	100	100

The majority of our patients had no history of premature delivery (See Table 8).

Table 8. Distribution of pregnant women according to the existence of a history of premature birth.

Premature delivery	Frequency	Percentage
Yes	14	14.0
No	86	86.0
Total	100	100

Only 8% of our patients had a history of high blood pressure (See Table 9).

Table 9. Distribution of pregnant women according to medical history.

Medical background	Frequency	Percentage
Bilharzia	1	1.0
Diabetes	4	4.0
HT	8	8.0
Urinary infections	29	29.0
Malaria	36	36.0
None	22	22.0
Total	100	100

The majority of our patients had a history of fever with 96 % of cases (See Table 10).

Table 10. Distribution of pregnant women according to the existence of a history of fever.

Fever	Frequency	Percentage
Yes	96	96.0
No	4	4.0
Total	100	100

Malaria was the most represented etiology with 43% followed by pyelonephritis with 21% of cases (See Table 11).

Table 11. Distribution of pregnant women according to diagnosis.

Diagnostic	Frequency	Percentage
HIV infection	6	6.0
Malaria	43	43.0
Pyelonephritis	21	21.0
Salmonellosis	6	6.0
Others	24	24.0
Total	100	100

The majority of our patients did not have ovular complications with 79% of cases (See Table 12).

Table 12. Distribution of pregnant women according to ovular complications.

Ovular complications	Frequency	Percentage
Premature delivery	10	10.0
Fetal hypotrophy	3	3.0
Neonatal infection	1	1.0
Death in utero	6	6.0
RPM	1	1.0
None	76	79.0
Total	100	100

Anemia was the most common maternal complication with 11% of our patients (See Table 13).

Table 13. distribution of pregnant women according to maternal complications.

Maternal complications	Frequency	Percentage
Anemia	11	11.0
Renal failure	2	2.0
Sepsis	2	2.0
None	85	85.0
Total	100	100

The majority of our patients had a positive thick smear with 54% of cases (See Table 14).

Table 14. Distribution of pregnant women according to the result of the thick drop and the thin smear.

GE + Smear result	Frequency	Percentage
Positive	54	54.0
Negative	46	46.0
Total	100	100

The majority of our patients had not received antibiotic therapy with 51% of cases (See Table 15).

Table 15. distribution of pregnant women according to antibiotic treatment.

Antibiotic therapy	Frequency	Percentage
Yes	49	49.0
No	51	51.0
Total	100	100

4. Discussions

The causes of fever are multiple; it is for this reason that our study requires additional examinations.

Febrile conditions in pregnant women linked to listeriosis; rickettsiosis; to amiotite as well as the precision of the type of germ have not been achieved due to the laboratory's lack of equipment necessary for this purpose.

The rapid malaria diagnostic test was systematically performed in all febrile patients.

Depending on the clinical context and the feasibility of laboratory tests; in addition to the TDR; we requested the GE; the ECBU; HIV serology; serodiagnosis of Widal-Felix and the search for acid-alcohol-resistant bacilli in sputum.

During our study, 100 cases of fever were counted in the gyneco-obstetrics department of the reference health center of the Sélingué health district on a sample of 6000 pregnant and parturient women, *i.e.* a prevalence of 1.67%. This significantly high percentage can be explained by the annual transmission of malaria in Sélingué.

Other studies carried out in the same area give the following results: Mr. Berthe in 2008 at the reference health center in the Mali district found out of a sample of nine thousand eight hundred and ninety-six found 100 cases of fever, *i.e.* A prevalence of 1%. Togo In 1993 at the Point G Hospital, a sample of 763 pregnant women found 10 cases of fever, representing a prevalence of 1.31%.

The vast majority of our patients were unemployed. It appears here that the most deprived populations are the most affected. Our study shows that age does not significantly influence the prevalence of febrile illnesses in patients.

The dominant age group is 20 to 25 years old with an average age of 23 years old. This age group is made up of women in a period of maximum genital activ-

ity and therefore there are more cases of pregnancy. This was found by Togo A. [15]. Nulliparous women represent 34% and are the majority and although a priori there appears no link between parity and the pathologies studied, we, like other authors [16] [17], studied this relationship and arrived at the same result. Indeed, it generally follows from our study that the prevalence of the pathologies studied decreases with the number of deliveries. No reason has so far been given to explain this negative correlation. Perhaps the maternal body defends itself during each pregnancy and thus a certain degree of immunity is established gradually. 10% of our patients have a history of pyelonephritis, this rate is identical to that of Togo HAS. and lower than that of Colau JC., which finds 25% [18]. 15% of pregnant and parturient women have a history of malaria, and more than half of the patients, *i.e.* 58% have at least 1 (one) child.

4.1. Diagnostic

Malaria undoubtedly remains the dominant febrile pathology in our series, with a prevalence of 43%. Pregnant women indeed constitute a high risk group for this pathology and its frequency is differently assessed in endemic areas variation linked to methodological differences in the studies [16] [19] [20] and also probably to the size of the sample.

However, our observations on this pathology agree with those of the authors which vary from 5.6 to 48% [21]-[23].

As for pyelonephritis, it is one of the most common complications of pregnancy [24], and due to its importance it is the second cause of fever in our department. This frequency is undoubtedly linked to several factors. Indeed, the particular hormonal climate during pregnancy leads to a relaxation by progesterone of the smooth muscles of the urinary tract, this associated with the mechanical compression of the ureter by the gravid uterus, which leads to urinary stasis which favors the development of pyelonephritis during pregnancy. Also the proximity of the female ureter to the digestive tract (anus) as well as the brevity would favor the passage and ascension of germs from the digestive tract into the urinary tract, particularly colibacilli which have specific receptors on the cells of the tract urinary.

The frequency of this pathology in our study is 21% lower than that of Chenge *et al.* [25] who estimated it at 37%, however it is higher than that of other authors which varies from 5 to 10% [2].

Salmonellosis according to N' Goyi and Kakoma is quite common at 7%.

The frequency of typhoid fever could be explained by poor compliance with hygiene measures by the target population. The association of these pathologies with malaria observed in our series is a reality that must be recognized. This is how we find its association with Pyelonephritis in 12% of cases. If we add the state of immunosuppression during pregnancy, malaria during pregnancy makes the pregnant woman more vulnerable to intercurrent infections. One case of abdominal pregnancy was operated on successfully.

4.2. Maternal-Fetal Complications

There is no doubt that fever seriously worsens maternal and fetal prognosis. This risk is recognized by all authors who have carried out studies on febrile states and pregnancy, so in our series we recorded three (3) cases of fetal hypotrophy, *i.e.* 3%. Two (2) cases of in utero death or 2%, four (4) cases of neonatal death and four (4) cases of maternal anemia, however there was no sepsis or maternal death.

Febrile conditions can also affect the normal course of pregnancy.

In the first trimester, this can result in abortions. In our work we found four (4) cases, representing a success rate of 4%.

In the second half, this can be the cause of premature births. We recorded five (5) cases or 5% or at the end of the pregnancy after its progression to term this can result in fetal suffering.

4.3. Treatment

The majority of women hospitalized had a temperature ≥ 38.5˚C.

Malaria was the condition which caused the greatest number of hospitalizations.

Thus, quinine salts have been the antimalarial of choice in the treatment of our patients, *i.e.* 100% of cases. In venous administration by slow infusion of 5% glucose serum for three days in a row.

This choice was mentioned by the majority of authors who have carried out studies on febrile states in pregnant women.

Beta-lactams were the most widely used antibiotics. This is how amoxicillin was used in 51.92% of cases and amoxicillin Clavulanic acid in 3.84%.

The antimicrobial agent used must prevent bacterial adhesion, an essential step in the development of acute pyelonephritis.

Although the majority of E. coli is sensitive to amoxicillin, there are still a few resistant strains due to the presence of beta lactamases. In this case, amoxicillin plus clavulanic acid provides better effectiveness and eliminates occasional germs such as klebsiella and proteus.

We associated quinine salts with ceftriaxone in 75% of cases, and quinimax R 125mg with antiretrovirals in 25% of cases.

This is to treat cases of associated pathologies in patients.

To reduce the fever we used injectable paracetamol (perfalgan) by direct intravenous infusion every 8 hours per day if the fever persisted.

Fumafer iron supplementation with etiological treatments.

The duration of treatment varied between 5-15 days with an average duration of 7 days. 98% of our patients were cured and 2% were evacuated to the Gabriel Touré university hospital center.

5. Conclusions

In our study on febrile conditions among pregnant women in the gyne-

co-obstetrics department of the CSREF of Sélingué, we note: a prevalence of 1.67% of fever among pregnant and parturient women; the most deprived populations are the most affected.

Malaria undoubtedly remains the dominant febrile pathology in our series, with a prevalence of 43% followed by Pyelonephritis with 12% and salmonellosis with 6%.

As for maternal-fetal complications, we recorded three (3) cases of fetal hypotrophy or 3%, two (2) cases of in-utero death or 2%, four (4) cases of neonatal death and four (4) cases of maternal anemia.

The treatment was mainly focused on the etiology in question, that is to say quinine salts or quinine tablets for cases of malaria, antibiotics for cases of pyelonephritis and salmonellosis.

The non-feasibility of certain biological tests hampered the search for other causes of fever in most of our pregnant women.

Conflicts of Interest

The authors declare no conflicts of interest.

References

[1] Abboud, P., Quereux, C., Bureau, G. and Leroux, B. (1995) Tuberculose et grossesse. *Journal Français Gynécologie-Obstétrique Biologie Reproduction*, **24**, 863-866.

[2] Aghayan, M., Thoumsin, H. and Lambotte, R. (1990) Stratégies thérapeutiques de la bactériurie gravidique. *Revue Médicale de Liege*, **45**, 433-439.

[3] Aminon, A. (1989) Contribution à l'étude de pyélonéphrite et grossesse à propos de 84 cas. Mémoire de Médecine 1989, CHU COCODY, Abidjan.

[4] Baudet, J.H. (1984) Les formes habituelles de pyélonéphrite de la femme enceinte. *Annales d' Urologie*, **18**, 345-346.

[5] Baudet, J.H., Aubard, Y. and Mangiet, C. (1996) Listériose materno-foetale. *Revue Française Gynécologie-Obstétrique Biologie-Reproduction*, **91**, 404-412.

[6] Bensaid, F., Filalia, E.M., Balafrejs, N. and Alaoui, M. (1996) Les urgences abdominales non gynécologiques au cours de la grossesse. A propos de cinq observations. *Revue Française Gynécologie-Obstétrique Biologie-Reproduction*, **91**, 567-572.

[7] Berlandm, Communal, P., Pinaton, B., Cottin, X. and Dutruge, J. (1996) Fièvre au cours de l'accouchement. *Publication du CNGOF Gynecologie-Obstétrique*, **11**, 23-29.

[8] Badetti, B., Tanti, L., Cristine, M. and Boimond, H. (1997) Appendicite aiguë au troisième trimestre de la grossesse. *Revue Française Gynécologie-Obstétrique Biologie-Reproduction*, **92**, 205-207.

[9] Blanchier, H. (1995) Prise en charge de la primo infection et césarienne chez la femme enceinte atteinte d'herpes génital. *La Presse Médicale*, **24**, 6-7.

[10] Blanchot, J., Poulain, P., Odents, Polaric, J.C., Minet, J., Grall, J.Y. and Giraud, J.R. (1993) Fièvre au cours du travail. *Journal Français Gynécologie-Obstétrique Biologie-Reproduction*, **22**, 191-196.

[11] Bongain, A., Ibghi, W., Lange, A.C., Daoudi, K. and Gillet, J.Y. (1994) Surveillance de la grossesse pour la femme séropositive pour le VIH. *Revue Française Gynécologie-Obstétrique Biologie Reproduction*, **89**, 387-392

[12] Bouree, P. and Palies, B. (1986) Paludisme et grossesse. *Revue Française Gynécologie-Obstétrique Biologie-Reproduction*, **81**, 559-562.

[13] Brasme, T., Leroy, Q.D. and Biserte, J. (1991) Infection de l'appareil urinaire au cours de la grossesse. Diagnostic évolution pronostic, Traitement. *Revue du Patricien Paris Février*, **41**, 548-553.

[14] Brettes, J.P. and Collect, M. (1993) Affections tropicales et grossesse. Editions techniques encyclopédie Med-chirurgicales (Paris-France).

[15] Togo, A. (1993) Etude de l'association pyélonéphrite et grossesse dans le service de gynéco-obstétrique. De l'hôpital national du point G à propos de 61 cas. Thèse de Médecine, Bamako, 1993, N°20.

[16] Destre, D. and Guibert, J. (1985) Grossesse et pyélonéphrite. *Gazette of Medicine*, **92**, 69-70.

[17] Huraux, J. (1995) Epidémiologie des infections à herpès simplexe virus chez la femme enceinte et l'enfant et transmission maternofoetale. *La Presse Médicale*, **24**, 2-3.

[18] Colau, J.C. (1991) La bactériurie de la femme enceinte quand et comment la traitée? *Médecine et Maladies Infectieuses*, **21**, 142-148. https://doi.org/10.1016/s0399-077x(05)80027-7

[19] Correa, P., Bahy, M., Diallo, S., Fall, N., Sow, A. and N'Diaye, P. (1982) Paludisme et grossesse parue au journal Français Gynécologie obstétrique et Biologie-reproduction. **11**, 3-42.

[20] Dembélé, H. and Keita, E. (1995) Paludisme et grossesse saisonnalité relation avec l'anémie et petit poids de naissance à Bougoula Hameau (Sikasso). Thèse Méd. Bamako, 1995, N°20.

[21] Jelliffeef, L. (1968) Low Birth-Weight and Malarial Infection of the Placenta. *Bulletin of the World Health Organization*, **38**, 69-70.

[22] Kakoma, S. (1987) Grossesse et paludisme: Étude expérimentale, Clinique et épidémiologique. Thèse d'agrégation UCL, IMT Angers,1987.

[23] Mbanzulu, P.N. (1988) Paludisme et grossesse, Situation épidémiologique à Kinshsa (Zaïre). *Revue Française de Gynécologie Obstétrique*, **83**, 99-103.

[24] Merger, R., Levy, J. and Melchior, J. (1989) Précis d'obstétrique. 6ème Edition, Masson.

[25] Chenge, M., Kalenga, M.K. and Kakomas, S. (1998) Les états fébriles chez les gestantes à Lubumbashi (RDC). *Revue Française de Gynécologie et d'Obstétrique*, **93**, 475-480.