

Panorama of Medical Diseases in Pregnant and Postpartum Women in Internal Medicine at the University Hospital Center of the Point G

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The description of the epidemiological aspects of all medical pathologies associated with pregnancy and postpartum would provide relevant anamnestic orientation indices that could be taken into account in the global diagnostic and therapeutic approach in internal medicine. Panoramic studies of medical pathologies associated with pregnancy and postpartum have rarely been carried out in Africa, particularly in Mali. The objective of this observational cross-sectional and descriptive study with retrospective data collection for 5 years was to describe the epidemiological and clinical aspects of all medical pathologies associated with pregnancy and postpartum in internal medicine at the University Hospital Center of the Point G in Bamako. Globally, 1846 patients were admitted among which 49 pregnant or postpartum women presented a medical pathology (2.65%). The average age was 27.29 ± 5.84 years. The medical pathologies frequently associated with pregnancy and postpartum in our study were: cardiovascular pathologies (peripartum cardiomyopathy, pulmonary embolism); infectious pathologies (esophageal candidiasis on HIV infection and cerebral toxoplasmosis on HIV infection; digestive pathologies (hepatic cirrhosis).

Keywords: medical pathology, pregnancy, postpartum, internal medicine, Mali

INTRODUCTION

Pregnancy constitutes a non-negligible risk for the mother, as it makes the woman a fragile being, susceptible to being seriously affected at any time by any pathology or abnormality in the course of the pregnancy (Amoussou, 2003).

In the literature, numerous studies on medical pathologies associated with pregnancy and the postpartum period taken individually or in nosological groups have been reported, such as Malaria (Amoussou, 2003), HIV infection (Tsingaing, et al., 2011), anemia (Amoussou, 2003; Faye, et al., 2014; Makoutode, et al., 2004; Arezki & Naima, 2008), arterial hypertension (Bah, et al., 2000; Diallo, 2011), diabetes (Dabo, 2019; Maïga, 2009), heart disease (Younes, 2012), neurological pathologies (Guindo, 2015), thyroid pathologies (Moreno-Reyes, et al., 2013; Krassas, et al., 2010), autoimmune diseases (Mesfar, et al., 2018), auto-inflammatory syndrome (Stankovic, et al., 2008), etc.

Indeed, internal medicine is a medical field that is interested in the global diagnosis and management of adult diseases. It is, therefore, necessary to assess the distribution of medical pathologies in pregnant and postpartum women which would provide relevant anamnestic orientation indices to better integrate these

two notions (pregnancy and postpartum) in the global diagnostic and therapeutic approach in internal medicine.

However, panoramic studies of medical pathologies associated with pregnancy and postpartum have rarely been carried out in Africa, particularly Mali (Amoussou, 2003; Kasia, et al., 2020; Benabdelmalek, 2018).

This study aimed to describe the epidemiological and clinical aspects of all medical pathologies associated with pregnancy and postpartum in internal medicine at the University Hospital Center of Point G in Bamako.

METHODOLOGY

This was an observational cross-sectional and descriptive study with retrospective data collection from January 1, 2012, to December 31, 2016, which is a duration of 5 years. It was conducted in the internal medicine department at the University Hospital Center of Point G in Bamako. We included in this study all medical records of pregnant and postpartum women hospitalized for a medical pathology during the study period. Medical records of patients hospitalized for a medical pathology not associated with pregnancy and postpartum, medical records of pregnant and postpartum women hospitalized for a medical pathology outside the study site and period, and incomplete medical records were excluded from this study. Data were collected on a standard questionnaire including sociodemographic data, and epidemiological and clinical characteristics. Data entry and analysis were performed using SPSS version 22 software. Qualitative data were expressed as frequency and quantitative data as mean and standard deviation. Pearson's Chi2, Student's, Fisher's, and Yates statistical tests with a significance level of $p < 0.05$ were used as appropriate. For the realization of the study, the authorization of the Direction of the University Hospital Center of Point G and its Establishment Medical Committee was obtained. Patient medical records were used in strict confidentiality and were returned and filed in the archive room immediately after use.

RESULTS

During the study period (2012 - 2016), 1846 patients have admitted among whom 49 were pregnant or postpartum women who presented with a medical pathology, which is a frequency of 2.65%. Table 1 shows the socio-demographic characteristics of our study population. The age group of 25-44 years represented 63.27% of cases. The average age was 27.29 ± 5.84 years with extremes of 16 and 40 years. The Bambaran ethnic group was found with 26.53% of cases followed by the Peulhs with 24.49% of cases in our study. Housewives represented 81.63% of cases. The patients came from Bamako in 59.18% of cases.

TABLE 1
DISTRIBUTION OF PATIENTS ACCORDING TO SOCIO-DEMOGRAPHIC DATA

| Sociodemographic data | Number | Percentage |
|-----------------------|--------|------------|
| Age group | | |
| 12 - 24 years old | 18 | 36.73 |
| 25 - 44 years old | 31 | 63.27 |

| Sociodemographic data | Number | Percentage |
|------------------------------|---------------|-------------------|
| Age group | | |
| Ethnicity | | |
| Bambanan | 13 | 26.53 |
| Peulh | 12 | 24.49 |
| Sonrai | 3 | 6.12 |
| Sénoufo | 2 | 4.08 |
| Bwa | 1 | 2.04 |
| No information | 2 | 4.08 |
| Tamacheq | 1 | 2.04 |
| Malinké | 5 | 10.20 |
| Soninké | 10 | 20.41 |
| Profession | | |
| Housewife | 40 | 81.63 |
| Pupil or Student | 5 | 10.20 |
| Public servant | 2 | 4.08 |
| Trader | 1 | 2.04 |
| No information | 1 | 2.04 |
| Provenance | | |
| Bamako | 29 | 59.18 |
| Outside Bamako | 14 | 28.57 |
| No information | 6 | 12.24 |

The anamnestic data are recorded in Table 2. The patients have known hypertensives in 16.33% of cases. Multiparas accounted for 69.39%. Two patients had undergone a cesarean section. Medical pathologies were associated with pregnancy in 53.06% of cases against 46.94% of cases postpartum.

TABLE 2
DISTRIBUTION OF PATIENTS ACCORDING TO ANAMNESTIC DATA

| Anamnestic data | Number (N = 49) | Percentage |
|-----------------------------------|------------------------|-------------------|
| Medical history | | |
| HTA | 8 | 16.33 |
| Diabetes | 3 | 6.12 |
| Peptic ulcer diseases | 3 | 6.12 |
| No medical history | 26 | 53.06 |
| Others | 9 | 18.37 |
| Gyneco-obstetrical history | | |
| Spontaneous abortion | 3 | 6.12 |
| Nullipare | 2 | 4.10 |
| Primipare | 9 | 18.37 |
| Multipare | 34 | 69.39 |
| No information | 4 | 8.16 |

| Anamnestic data | Number (N = 49) | Percentage |
|--|------------------------|-------------------|
| Medical history | | |
| Surgical history | | |
| Cesarean section | 2 | 4.08 |
| No surgical history | 45 | 91.84 |
| Others | 2 | 4.08 |
| Women's status at the time of diagnosis | | |
| Pregnancy | 26 | 53.06 |
| First trimester | 24 | 48.98 |
| Second trimester | 16 | 32.65 |
| Third trimester | 9 | 18.37 |
| Postpartum | 23 | 46.94 |
| Early postpartum | 35 | 71.43 |
| Late postpartum | 14 | 28.57 |

Table 3 shows the distribution of patients according to medical pathologies in pregnant and postpartum women. The medical pathologies frequently associated with pregnancy and postpartum in our study were: cardiovascular pathologies with 24.49% of cases dominated by peripartum cardiomyopathy (n= 8 cases) followed by pulmonary embolism (n= 2 cases); infectious pathologies with 20.41% of cases dominated by esophageal candidiasis on HIV infection and cerebral toxoplasmosis on HIV infection (n= 2 cases each); digestive pathologies with 20.41% of cases dominated by hepatic cirrhosis (n= 5 cases); endocrine pathologies with 14.29% of cases dominated by hyperthyroidism and diabetes (n= 3 cases each) and haematological pathologies with 10.20% of cases dominated by anemia (n= 3 cases) followed by haematological malignancies (n= 2 cases).

TABLE 3
DISTRIBUTION OF PATIENTS ACCORDING TO MEDICAL PATHOLOGIES IN PREGNANT AND POSTPARTUM WOMEN

| Medical pathologies | Number (N = 49) | Percentage |
|---|------------------------|-------------------|
| Cardiovascular pathologies | 12 | 24.49 |
| Pulmonary embolism | 2 | 16.67 |
| Peripartum cardiomyopathy | 8 | 66.67 |
| Valvular heart disease (mitral insufficiency) | 1 | 8.33 |
| Thrombophlebitis of the lower limb | 1 | 8.33 |
| Total | 12 | 100.00 |
| Infectious diseases | 10 | 20.41 |
| Esophageal candidiasis on HIV infection | 2 | 20.00 |
| Cerebral toxoplasmosis on HIV infection | 2 | 20.00 |
| Pulmonary tuberculosis on HIV infection | 1 | 10.00 |
| Meningitis | 1 | 10.00 |
| Malaria | 1 | 10.00 |
| Urinary tract infection | 1 | 10.00 |
| Brain abscess | 1 | 10.00 |
| Others | 1 | 10.00 |
| Total | 10 | 100.00 |

| | | |
|--|-----------|---------------|
| Digestive diseases | 10 | 20.41 |
| Hepatic cirrhosis | 5 | 50.00 |
| Peptic esophagitis | 1 | 10.00 |
| Mallory Weiss syndrome | 1 | 10.00 |
| Stomach cancer | 1 | 10.00 |
| Others | 2 | 20.00 |
| Total | 10 | 100.00 |
| Endocrine pathologies | 7 | 14.29 |
| Hyperthyroidism | 3 | 42.86 |
| Hypothyroidism | 1 | 14.29 |
| Diabetes | 3 | 42.86 |
| Total | 7 | 100.00 |
| Hematological pathologies | 5 | 10.20 |
| Anemia | 3 | 60.00 |
| Malignant hemopathies | 2 | 40.00 |
| Total | 5 | 100.00 |
| Renal diseases | 2 | 4.08 |
| Impure nephrotic syndrome | 1 | 50.00 |
| Unspecified nephropathy complicated by renal failure | 1 | 50.00 |
| Total | 2 | 100.00 |
| Gyneco-obstetrical pathologies | 2 | 4.08 |
| Eclampsia | 2 | 100.00 |
| Total | 2 | 100.00 |
| Psychiatric disorders | 1 | 2.04 |
| Puerperal psychosis | 1 | 100.00 |
| Total | 1 | 100.00 |
| Total | 49 | 100.00 |

DISCUSSION

Interpretation of the results must take into account the pitfalls associated with this methodological approach to the study, which involved information bias (incompleteness of medical records), selection bias (patients treated in the gynecological-obstetrics department or other departments at the University Hospital Center of the Point G), confusion bias (impossibility to perform certain specialized paraclinical examinations for the confirmation of certain types of medical pathologies), and generalization bias (related to the hospital study site which is monocentric recruitment). These could lead to over- or underestimation of our study population and not be extrapolated to the general population. Despite all these biases we were able to discuss our results.

This was a descriptive study with retrospective data collection that covered a study period of 5 years (January 1, 2012, to December 31, 2016). It allowed us to understand the extent of medical pathologies associated with pregnancy and postpartum in internal medicine at the University Hospital Center of Point G in Bamako.

In our series, 1846 patients were admitted to the internal medicine department at the University Hospital Center of Point G in Bamako, among which 49 pregnant or postpartum women presented a medical pathology, which is a frequency of 2.65%. Our result is similar to that of Amoussou in Burkina Faso who noted a hospital frequency of medical and surgical pathologies associated with a pregnancy of 3.07%

(Amoussou, 2003). However, this frequency was lower than that reported by Dabo (2019) in Mali who obtained a frequency of diabetes associated with a pregnancy of 0.75%. In addition to frequency studies, Kasia et al. (2020) found a prevalence of maternal pathologies in pregnancy of 22%, Bah et al. (2000) a prevalence of heart disease and pregnancy of 17.05%, Moreno-Reyes et al. (2013) and Krassas et al. (2010) an incidence of hypothyroidism and hyperthyroidism associated with a pregnancy of 0.4% and 0.2% respectively, and Younes (2012) in Morocco an incidence of heart disease and pregnancy of 1.2%. The differences observed in these studies could be explained by the different modes of recruitment of the cases and the study site.

The age group of 25-44 years was affected in 63.27% of cases in our study population with a mean age of 27.29 ± 5.84 years and extreme ages of 16 and 40 years. Our results are similar to those obtained by Amoussou (2003) in Burkina, Kasia et al. (2020) in Cameroon, and Benabdelmalek (2018) in Morocco who found respectively 25, 6, 31.5 ± 8.19 and 31 years. This could be explained by a similar recruitment mode of cases (pregnancy and/or postpartum) in these different studies.

Multiparous women represented 69.39% of our study population, which is similar to that of Guindo (2015) in Mali who noted a rate of 49.8%. However, the series by Kasa et al. (2020) in Cameroon and Amoussou (2003) in Burkina Faso found a lower result than ours, i.e., 34.6% and 33.5% respectively. These two Cameroonian and Burkinabe studies were carried out in maternity and human reproductive health services, which are the first or predilection contact services for pregnant women, unlike ours, which is a specialized service that receives these patients either because of misdirections or diagnostic problems. This finding could explain these differences.

In our study, medical pathologies were associated with pregnancy in 53.06% of cases against 46.94% of cases in the postpartum. On the other hand, Guindo (2015) in Mali reported that neurological pathologies were associated with pregnancy in 39.1% of cases compared to 60.9% of cases in the postpartum. This difference can be explained by the different methodological approaches between the two studies.

Medical pathologies frequently associated with pregnancy and postpartum in our series were: postpartum cardiomyopathy (n= 8 cases), hepatic cirrhosis (n= 5 cases), anemia (n= 3 cases), diabetes (n= 3 cases), hyperthyroidism (n= 3 cases), pulmonary embolism (n= 2 cases), esophageal candidiasis on HIV infection (n= 2 cases), cerebral toxoplasmosis on HIV infection (n= 2), eclampsia (n= 2 cases). This panoramic profile characterized by a disparate distribution of medical pathologies associated with pregnancy and postpartum in our study is superposable to those of Amoussou (2003) in Burkina Faso who noted a frequency of anemia at 28.8%, followed by urinary tract infection at 23.7%, malaria at 21.6%, arterial hypertension at 11%; Kasia et al. (2020) in Cameroon who found malaria (99 cases, 39.8%), genital infections (67 cases, 26.9%), anemia (66 cases, 26.5%), urinary tract infections (23 cases, 9.2%), hypertensive diseases (20 cases, 8%), HIV infection (19 cases, 7.6%), viral hepatitis B (14 cases, 5.8%), hyperemesis gravidarum (6 cases or 2.4%), diabetes (3 cases or 1.2%) and thromboembolic disease (2 cases or 0.8%); and Benabdelmalek (2018) in Morocco who found asthma (27%), followed by diabetes (22%), heart disease (14.4%), epilepsy (3.6%), hypertension (3.4%), anemia (3.2%), condyloma (2.7%), HIV (2.3%), syphilis (2%), and viral hepatitis B (1.8%).

CONCLUSION

This study shows that cardiovascular pathologies (postpartum cardiomyopathy, pulmonary embolism, thrombophlebitis of the lower limb) followed by infectious pathologies (esophageal candidiasis in HIV infection, cerebral toxoplasmosis in HIV infection) and digestive pathologies (hepatic cirrhosis) are frequently associated with pregnancy and postpartum in internal medicine. A multicenter open cohort study with prospective data collection will be necessary to better study, despite this first work, all these epidemiological, clinical, therapeutic, and evolutionary aspects of all medical pathologies, even rare, associated with pregnancy and postpartum.

REFERENCES

- Amoussou, K.E. (2003). *Pathologies associées à la grossesse à la maternité du centre hospitalier universitaire Yalgado Ouedraogo: Étude des aspects épidémiologique, clinique et pronostique* (Document N° 049) [Thèse Médecine, Université de Ouagadougou]. Retrieved from <https://beep.ird.fr/collect/uouaga/index/assoc/M09270.dir/M09270.pdf>
- Arezki, B., & Naima, B. (2008). Prévalence de l'anémie ferriprive au cours de la grossesse dans la wilaya de Blida (Nord de l'Algérie). *Nutr Clin Métabolisme*, 22(3), 100–107. <https://doi.org/10.1016/j.nupar.2008.07.005>
- Bah, A.O., Diallo, M.H., Diallo, A.A.S., Keita, N., & Diallo, M.S. (2000). Hypertension artérielle et grossesse: Aspects épidémiologiques et facteurs de risques. *Médecine d'Afrique Noire*, 47(10), 422–425. Retrieved from <http://www.santetropicale.com/Resume/104704.pdf>
- Benabdelmalek, N. (2018). *Pathologie maternelle et grossesse (à propos de 556 cas)* [Thèse Médecine, Université Mohamed V]. Retrieved from <http://ao.um5.ac.ma/xmlui/handle/123456789/16492>
- Dabo, A. (2019). *Diabète et grossesse dans le CSRéf de la commune I*. [Thèse Médecine, Université des Sciences, Techniques et Technologiques de Bamako]. ADHL Mali Home. Retrieved from <https://www.bibliosante.ml/bitstream/handle/123456789/3759/19M371.pdf?sequence=1&isAllowed=y>
- Diallo, B. (2011). *Hypertension artérielle sur grossesse à propos de 200 cas au service de gynécologie obstétrique à l'Hôpital Nianankoro FOMBA de Ségou*. [Thèse Médecine, Université des Sciences, Techniques et Technologiques de Bamako]. ADHL Mali Home. Retrieved from <https://www.bibliosante.ml/bitstream/handle/123456789/1519/12M80.pdf?sequence=1&isAllowed=y>
- Faye, B., Tine, R.C., Sylla, K., Diagne, A., Sow, D., Ndiaye, J.L., Dieng, Y., . . . Gaye-Sénégal, O. (2014). Anémie au cours de la grossesse au Sénégal : rôle du paludisme et des parasitoses intestinales. *Med Afr Noire*, 61(3), 169–74. Retrieved from http://www.santetropicale.com/sites_pays/resume_oa.asp?revue=man&action=lire&id_article=2549&rep=senegal#close
- Guindo, A. (2015). *Pathologies neurologiques associées à la grossesse et au postpartum dans le service de neurologie du CHU Gabriel TOURE*. [Thèse Médecine, Université des Sciences, Techniques et Technologiques de Bamako]. ADHL Mali Home. Retrieved from <https://www.bibliosante.ml/bitstream/handle/123456789/912/15M281.pdf?sequence=1&isAllowed=y>
- Kasia, J.M., Noa Ndoua, C.C., Belinga, E., & Kensoung, H. (2020). Les Pathologies Maternelles en Grossesse au CHRACERH. *Health Sci. Dis.*, 21(4), 39–43. Retrieved from <https://www.hsd-fmsb.org/index.php/hsd/article/view/1942/1479>
- Krassas, G.E., Poppe, K., & Glinioer, D. (2010). Thyroid function and human reproductive health. *Endocr Rev*, 31, 702–55. doi: 10.1210/er.2009-0041
- Maiga, I. (2009). *Diabète et grossesse dans les services de médecine interne, de gynécologie obstétrique du CHU du point G et dans le service de gynécologie obstétrique du CHU Gabriel Toure*. [Thèse Médecine, Université des Sciences, Techniques et Technologiques de Bamako]. Bibliothèque FMPOS. Retrieved from <https://www.kenya.net/fmpos/theses/2009/med/pdf/09M296.pdf>
- Makoutode, M., Ouendo, E., & Paraiso, M.N. (2008). Prévalence de l'anémie chez la femme enceinte à Porto-Novo Zone III Au Bénin. *Med Afr Noire*, 51(1), 5–10. Retrieved from <https://www.semanticscholar.org/paper/Pr%C3%A9valence-de-l%27an%C3%A9mie-chez-la-femme-enceinte-%C3%A0-III-Makoutode-Agboton-Zoumenou/e40df992060670a6e8280c98e5d2d44e52f3dbe6>
- Mesfar, R., Kechida, M., Daadaa, S., Chaabene, I., Klii, R., Hammami, S., & Khochtali, I. (2018, December). Grossesse et maladies auto immunes. *La Revue de Médecine Interne*, 39(2), A228–A229. <https://doi.org/10.1016/j.revmed.2018.10.242>

- Moreno-Reyes, R., Glinoe, D., Van Oyen, H., & Vandevijvere, S. (2013). High prevalence of thyroid disorders in pregnant women in a mildly iodine-deficient country: A population-based study. *J Clin Endocrinol Metab*, 98, 3694–701. doi: 10.1210/jc.2013-2149
- Stankovic, K., Hentgen, V., & Grateau, G. (2008). Syndromes auto-inflammatoires et grossesse. *Presse Med*, 37, 1676–1682. doi : 10.1016/j.lpm.2008.08.002
- Tsingaing, K.J., Egbe, O.T., Ekane, G.H., Nguetack, C.T., Njamen, T.N., Imandy, G., . . . Priso, E.B. (2011). Prévalence du VIH chez la Femme Enceinte et Transmission Mère-Enfant du VIH à la Maternité de l’Hôpital Général de Douala, Cameroun. *Clinics in Mother and Child Health*, 8, 1–3. <https://doi.org/10.4303/cmch/c100801>
- Younes, A. (2012). *Cardiopathies et grossesse: (A propos de 26 cas)* (Document N° 115/12) [Thèse Médecine, Université Sidi Mohammed Ben Abdellah]. Retrieved from https://cdim.fmp-usmba.ac.ma/mediatheque/e_theses/115-12.pdf