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Epidemiological and Prognostic Aspects of Obesity and Pregnancy in the Gynecology-Obstetrics Department at the Sylvanus Olympio University Hospital Center (CHU SO) in Lomé

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Abstract

Introduction: Obesity and pregnancy is a major public health problem worldwide, both maternal and fetal. **Objective:** This is to describe the epidemiological and prognostic aspects of obesity and pregnancy in the gynecology-obstetrics department at the Sylvanus Olympio University Hospital Center (CHU SO) in Lomé. **Methodology:** This was a descriptive cross-sectional study concerning obesed pregnant women. The survey was conducted from the 1st to the 30th of June 2022 at the CHU SO. **Results:** We enrolled 55 obese pregnant women. The frequency of obesity and pregnancy was 5.14%. Resellers were represented at 41.8%. The average age was 31 years old. As risk factors, 85.5% claimed to have a fatty diet and 76% did not practice sports. The gestational pathologies found during pregnancy were hypertension in 47.4% of cases, preeclampsia in 24.6% and gestational diabetes in 7%. Caesarean section was the way of delivery in 63.6% of cases and those who gave birth vaginally presented a tear of the soft tissues in 85% of cases. Birth weight was abnormal (low weight and excess weight) in 61.8% of cases. **Conclusion:** The association between obesity and pregnancy constitutes an important risk factor for the mother and the fetus.

Keywords

Obesity, Pregnancy, CHU SO, Togo

1. Introduction

Pregnancy, considered a physiological phenomenon, sometimes involves the vital prognosis of the mother and/or the fetus when it is especially associated with certain pathologies. This is the case of obesity [1]. Obesity is increasingly common in Africa with almost 20% - 50% of urban populations classified as overweight or obese [2] [3]. It is the direct consequence of socio-economic development and changes in lifestyle that lead to greater consumption of high-calorie foods accompanied by a more sedentary lifestyle. Added to this are various representations and beliefs that promote voluntary weight gain [4].

The association between obesity and pregnancy is a major public health problem world wide. The prevalence is highly variable depending on the populations studied and is globally between 6% and 20% [5] [6]. N'Guessan in Côte d'Ivoire in 2008 found a prevalence of 11.3% [7]. In Togo, some studies have been carried out on obesity [8] [9]. These studies addressed the epidemiological aspects, risk factors and complications of obesity in patients who came either for cardiology consultation or were hospitalized in the internal medicine department. At the current state of our research, no study has specifically addressed the association between obesity and pregnancy. This is why we initiated this study which aims to evaluate the epidemiological aspects and the maternal-fetal prognosis of obesity and pregnancy at the Centre Hospitalier Universitaire Sylvanus Olympio (CHU SO) in Lomé.

2. Methodology

This was a cross-sectional descriptive study conducted in the Gynecology-Obstetrics department of the CHU-SO of Lomé. The survey took place from the 1st to 30th of June 2022. The Body Mass Index (BMI) = Weight (kg)/Height^2 (m^2), was used to determine obese pregnant women, in order to include them in the study. All pregnant women with a BMI greater than or equal to 30 kg/m^2 before pregnancy or at the start of pregnancy and who were admitted and hospitalized at the maternity hospital of the CHU-SO were concerned. Informed consent will be required. Were not included in the studies, all pregnant women who did not know their weight before pregnancy and whose weight was not taken in the first trimester. The data was collected using a pre-established and tested survey form which, we administered after informed consent. The parameters studied were socio-demographic characteristics, risk factors, pregnancy monitoring, pregnancy pathologies, prognosis, delivery route, newborn weight, Apgar score and complications encountered.

Data analysis and processing were done by Epi Infos 7.2.5.0, Microsoft Word 2016 and Excel.

Operational definitions:

- **Obesity:** BMI ≥ 30 kg/m^2.
- **Moderate obesity:** BMI included from 30 to 34 kg/m^2.
- **Severe obesity:** BMI included from 35 to 39 kg/m^2.
- **Morbid obesity:** BMI ≥ 40 kg/m^2.

3. Results

3.1. Prevalence of the Obesity-Pregnancy Association

We enrolled 55 obese out of 1070 pregnant women received during our survey period, which represented a hospital prevalence of 5.14%.

3.2. Socio-Demographic Characteristics and Lifestyle

The average age was 31 years with extremes of 23 years and 37 years. The age group of 25 to 29 years accounted for 38.2% of cases. With regard to the profession, 41.8% of our respondents were resellers and 27.3% were housewives. Among pregnant women, 85.5% claimed to have a usually fatty diet. The non-practice of sports activities was represented at 76.4% (Table 1).

3.3. Background

- In the gynecological history we noted 39.5% of menstrual disorders (Figure 1).
- In the obstetric history, paucigestes and pauciparas were represented in 50.9% and 52.7% respectively (Table 2).
- The surgical history was represented by caesarean section in 48% of women and myomectomy in 10%.
- In our series, 40.7% had a family history of obesity.

  Body mass index: 43.6% of patients were moderately obese (Table 3).

  Monitoring of pregnancy: during antenatal care, the pathologies discovered were arterial hypertension in 47.4%, preeclampsia in 24.6% and gestational diabetes in 7% of cases.

  Delivery prognosis: Caesarean section was performed in 63.6% of cases and 36.4% gave birth vaginally.

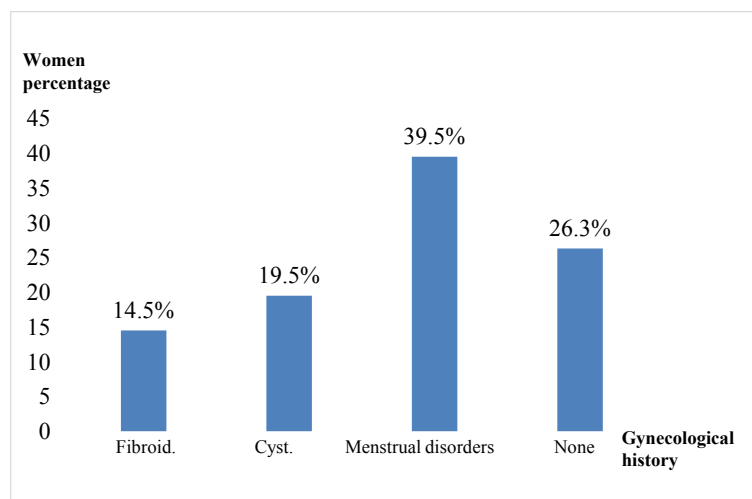 Weight and Apgar at birth were good in 38.2% and 82.4% of cases respectively (Table 4).

Figure 1. Distribution of women according to gynecological history.

Table 1. Distribution of women according to their socio-demographic characteristics and lifestyle.

	Effective	Percentage
Age (year)		
<25	3	5.6
[25 - 29]	21	38.2
[30 - 34]	15	27.1
[35 - 39]	16	29.1
Occupation		
Housewives	23	41.8
Resellers	15	27.3
Private and public employees	5	9.2
Students	4	7.3
Others	9	16.4
Practice of physical and sports activities		
Nope	42	76.4
Yes	13	23.6
Type of physical and sports activities (n = 13)		
Walking	6	46.2
Race	4	30.7
Gymnastic	3	23.1
Frequency (n = 13)		
Rarely	5	38.5
2 to 3 times a week	3	23.1
Once or twice a month	3	23.1
Every day	2	15.3

Table 2. Distribution of women according to their obstetric history.

	Effective	Percentage
gesture		
Paucigeste	28	50.9
Multigesture	14	25.5
primigest	13	23.6
Parity		
Pauciparous	29	52.7
Primiparous	16	29.1
Multipara	9	16.4
Nulliparous	1	1.8

Table 3. Distribution of patients according to their BMI.

	Effective	Percentage
Moderate obesity ([30 - 35])	24	43.6
Severe obesity ([35 - 40])	23	41.8
Morbid obesity (40+)	8	14.6
Total	55	100

Table 4. Distribution of women according to birth weight and Apgar.

	Effective	Percentage
Newborn weight		
regular weight	21	38.2
Excess weight	17	30.9
Macrosomia	12	21.8
Low weight	5	9.1
Apgar score		
<03	1	1.9
03 - 07	8	15.7
≥07	42	82.4

3.4. Birth Complications

The major complications of vaginal delivery were perineal tears in 60% of cases, vaginal tears in 25% of cases, followed by episiotomy in 10% of cases and postpartum hemorrhage in 5% cases.

No major complications related to caesarean among those who had a caesarean section.

4. Discussion

The frequency of obesity and pregnancy in our study was 5.14%. It is close to the 6.6% found by Doherty [10] in 2006. N'Guessan *et al.* [7] in Ivory Coast in 2008 found a higher frequency of 11.3%. The frequency of the pregnancy-obesity association is therefore assessed in different ways in the literature. The average age of pregnant women with obesity in our series was 31 years. N'Guessan [7] found the same result (31 years).

Only 14.5% did not usually have a fatty diet and 23.6% practiced sports; 40.7% had a family history of obesity. This confirms the fact that the African population engages in practices aimed rather at gaining weight since obesity is perceived as a sign of ease. Indeed, studies in Africa have demonstrated a strong positive relationship between obesity and high socio-economic status [4] [11], contrary to what is observed in developed countries where obesity is rather associated with low socio-economic status [12]. Among the pathologies associated with pregnancy, hypertension was more common in 47.4% of cases. The predominance of hypertension in the association of obesity and pregnancy has been

found in several previous studies [13] [14].

Caesarean section was the way of delivery in 63.6% of cases. This rate is significantly higher than cesarean section rates in the general population. Essiben *et al.* [15] in 2020, in Yaoundé had found a rate of 29.6% in Cameroon.

This high rate of cesarean in our series reveals the correlation between cesarean and obesity by its complications including hypertension (47.4%), preeclampsia (24.6%) and diabetes (7%). Obesity is also a provider of soft tissue lesions. All this pushes the obstetrician to perform a caesarean section in order to reduce maternal and neonatal morbidity and mortality. Only 38.2% of newborns had a birth weight within normal limits with 21.8% large babies. N'Guessan [7] found 13.4% large babies. Several factors related to obesity can contribute to having either a low weight or higher than normal baby, namely: hypertension, preeclampsia, diabetes.

The limits of our study reside in the fact that it is made only in the maternity department of the CHU SO but this does not constitute a bias because it is the largest hospital in Togo and also a national reference center. The duration of the survey is relatively short but this has no bearing on our study since obesity is not a seasonal condition.

5. Conclusions

The association between obesity and pregnancy constitutes a significant risk for the mother and the fetus. The most common risk factors are physical inactivity and eating habits. Gestational hypertension is the most frequent associated pathology in the mother, followed by pre-eclampsia and gestational diabetes. The high rate of caesareans and vulvo-perineal tears were found at delivery. Birth weight was not within normal limits in the majority of cases.

It is important to sensitize the population to a change of mentality and behavior in order to avoid obesity, source of complications.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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Appendix

SURVEY SHEET

Theme: Epidemiological and prognostic aspects of obesity and pregnancy in the gynecology-obstetrics department at the Sylvanus Olympio University Hospital Center (CHU SO) in Lomé

I. Socio-demographic data

Q1-Age /......./

Q2-Educational level:

No schooling□ primary□ Secondary□ Tertiary□ University □

Q3-Socio-professional category:

Farmer □ Artisan □ Public employee □ Private employee □ Trader/Reseller □ Apprentice □ Student □ Pupil □ Housewife □

Others to be specified ……..

Q4-Religion:

Muslim □ Christian □ Animism □ Atheist □ Other to be specified……

Q5-Ethnicity /………………..../

Q6-Place of residence:

Urban □ Rural □

Q7-Marital status:

Married □ Single □ Divorced □ Cohabiting □ Widowed □

II. Risk factors

Q8-Physical activity:

- Sports:

Walking □ Swimming □ Running □ Gym □ Other to be specified /…….../

- Rhythm:

Every day □ 2 to 3 times a week □ Once to twice a month □ Rarely □ Never □

Q9-Type of power supply:

Not greasy □ Slightly greasy □ greasy □

III. Background:

Q10-Medical history:

RAS □ High blood pressure □ Diabetes □ Sickle cell disease □ Asthma □

Others to be specified ………

Q11-Gynecological history:

RAS □ Fibroid /myoma □ Ovarian cyst □ Cycle disorder □

Q12-Surgical history:

RAS □ Cesarean □ Myomectomy □ Other to be specified …….

Q13-Obstetric history:

- Gesture:

Primigest □ Paucigest □ Multigesture □

- Parity:

Nulliparous □ Primiparous □ Pauciparous □ Multiparous □

Q14-Number of living children /…../

Q15-Number of abortions /…../

Q16-Number of deceased children /…../

Q17-Number of stillbirths /…../

Q18-Inter birth interval /…. /

Q19-Family history:

RAS □ HTA □ Diabetes □ Obesity □ Asthma □ Others to specify ……

IV. Pregnancy follow-up:

Q20- Gestational age at first ANC/……

Q21 -Clinical aspects

*General examination

Q22-weight at the beginning of pregnancy or usual weight/……./

Q23-Size/…../

Q24-BMI/…./

Q25-edema of the lower limbs: Yes □ No □

Q26-General condition: Good □ Bad □ Fair □

*Obstetrical examination

Q27-Funtal height:

Below normal □ Normal □ Above normal □

Q28-Fetal heart sounds if the age of pregnancy is greater than or equal to 20 weeks: Present □ Absent □

V. Predictions

Q29-Pathologies during pregnancy: RAS □ HTA □ Pre-eclampsia □

Gestational diabetes □ Other to be specified/…………../

Q30-Term of pregnancy: Abortion □ premature □ Normal term □ Post term □ Death in utero □

Q34-Apgar score: <03 □ 03 - 07□ ≥07□

Q35-Complications during childbirth: /……………………….