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Open Access Journal | Volume: 1.1

Journal of Gynecology and Reproductive Biology

Epidemiological Profile and Outcome of Maternal Diseases in Pregnancy at the Laparoscopic Surgery and Human Reproduction Teaching Hospital

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Abstract

Introduction: Maternal and child health is an important part of the health development plan of many countries. All pregnancies are at risk, some of them can be considered of high risk because they are associated with some pathologies. The aim of our work is to enrich the data on all the pathologies associated with pregnancy in order to improve the care of the mother and her newborn.

Objective: To study the epidemiological profile and the evolution of maternal pathologies in pregnancy at the Laparoscopic Surgery and Human Reproduction Teaching Hospital (CHRACERH).

Methodology: We carried out a descriptive and analytical, cross-sectional study from May 2016 to May 2019. We included pregnant women whose pregnancy were associated with a maternal pathology diagnosed before or during pregnancy and subsequently gave birth at CHRACERH. We excluded disabilities and trauma in pregnancy. Sampling was consecutive and exhaustive. The data were collected using a questionnaire and analyzed using Epi Info software version 3.5.4 and SPSS version 7.

Results: At the end of our study, 249 patients fulfilled our inclusion criteria among the 1132 pregnancies received during our study period, giving a prevalence of 22% (95% CI: 19.7 - 24.5). The average age of pregnant women was 31.19 years old. At least one infectious pathology was found in 73.9% of pregnant women; 40.6% had at least one non-infectious pathology. Maternal pathologies found were: malaria (99 cases, 39.8%), genital infections (67 cases, 26.9%), anemia (66 cases, 26.5%), urinary tract infections (23 cases, or 9.2%), hypertensive diseases (20 cases, 8%), HIV infection (19 cases, 7.6%). The most frequent maternal complications were Eclampsia (7 cases, 2.8%) and premature rupture of membranes (6 cases, 1.6%). The fetal complications recorded were threatened abortion, premature delivery and intrauterine death.

Conclusion: Maternal pathologies in pregnancy remain present in our environment and are dominated by infectious diseases.

Key words

Maternal pathology; Pathological pregnancy; Morbidity

Introduction

Maternal and child health is part of the health development plan of many countries. For each review of maternal death, 30 to 100 women are victims of maternal morbidities [1]. At least 20% of the dominant diseases in children under 5 years of age are linked to poor health, poor nutrition of the mother, as well as insufficient quality of care during pregnancy, childbirth and the first days of life [2]. To reduce the risk of death from birth and complications of pregnancy, the WHO in 2016 defined a new model with eight prenatal contacts, replacing the refocused antenatal consultation model, thus constituting a platform to provide important health benefits including health promotion, screening, diagnosis and prevention of disease [3]. Complications most often appear during pregnancy and could be avoided or treated; others that existed prior to pregnancy worsen at this time, especially if they are not taken into account within the framework of the care [4].

Methods

This was a descriptive and analytical cross-sectional study with retrospective data collection at the Endoscopic Surgery and Human Reproduction Teaching Hospital

Article Information

DOI:	10.31021/jgrb.20201102
Article Type:	Research Article
Journal Type:	Open Access
Volume:	1 **Issue:** 1
Manuscript ID:	JGRB-1-102
Publisher:	Boffin Access Limited
Received Date:	01 February 2020
Accepted Date:	19 February 2020
Published Date:	20 February 2020

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Citation: Cyrille NNC, Etienne B, Hermione K, Annick MNJ, Marie KJ. Epidemiological Profile and Outcome of Maternal Diseases in Pregnancy at the Laparoscopic Surgery and Human Reproduction Teaching Hospital. J Gynecol Reprod Biol. 2020 Jan;1(1):102

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(CHRACERH) over a period of 3 years, from May 2016 to May 2019. We included all pregnant women followed at CHRACERH, whose pregnancy was associated with a maternal pathology diagnosed before or during pregnancy and having completed it at CHRACERH. We excluded patients with trauma, injuries and those with a disability that occurred before pregnancy. The sampling was consecutive and exhaustive. The variables collected were socio-demographic characteristics, obstetric history, past medical and surgical history of patients. We also evaluated various aspects of the antenatal care, such as, the quality of prenatal visits (gestational age at first ANC, number of ANC visits), preventive aspects (anti-anemic, anti-malaria prophylaxis) and curative aspects (pathologies diagnosed and managed during pregnancy) and the materno-fetal outcome of the pregnancy. The data collected on the technical sheet were entered and analyzed respectively, with CS Pro version 7.1 and SPSS version 25.0 software. The tables were drawn up using Microsoft Office Excel and Word 2013 software. Averages were calculated for the quantitative variables and frequencies for the qualitative variables. The cross tab was used to compare the qualitative and quantitative variables. The odds ratio with its 95% confidence interval was used to assess the degree of association between the variables. The significance threshold was set at 5% or 0.05.

Results

At the end of our study, 249 patients fulfilled our inclusion criteria among the 1132 pregnancies received during our study period, giving a prevalence of 22% (95% CI: 19.7 - 24.5). The mean age of the patients in our study population was 31.19 ± 8.19 years with extremes from 12 to 51 years. The most represented age group was that of 31 to 36 years (32.6%). The majority of patients (53.8%) were married. The majority of the patients were employed (67.1%); had a higher level of education (75.9%) and lived in Yaoundé (88.8%) (**Table I).**

Multigravid women represented 53.8% of our study population. The majority of pregnant women in our study were nulliparous (41.4%) and 32% had a history of infertility (**Table II).**

The pregnancy occurred spontaneously in 226 patients or 90.8% and only 23 patients (9.2%) had benefited from medically assisted procreation. The majority of pregnant women (90.8%) had a singleton pregnancy; 8 (3.2%) had a twin pregnancies and 4 (1.6%) had triplets **(Table III).**

The maternal pathologies found during pregnancy and classified in decreasing order of frequency were malaria in 99 cases (39.8%), genital infections in 67 cases (26.9%) and anemia in 66 cases (26.5%) **(Table IV).**

The most frequent complications found were; eclampsia in 7 cases (2.8%), premature rupture of the membranes in 6 cases (2.4%), Abruptio placenta in 4 cases (2.4%), threatened abortion and premature delivery in 2 cases (0.8%) (**Table V).**

Eclampsia was the main complication in women with hypertensive disorders (**Table VI)**

The pregnancy ended in an abortion in 3.6% of the cases; a premature delivery in 5.2% of the cases, a post-term delivery in 0.8% of the cases and 90.4% of the patients carried their pregnancy to term. Vaginal delivery was the most frequent at 63.4% (with 3 cases of instrumental delivery recorded) and the cesarean section rate was at 36.6% (with 18.8% elective and 17.8% urgent indications) (**Table VII).**

The majorities of the newborns were born alive (98.8%), of normal morphology (99.6%) and had a good adaptation to extra uterine life (94.4%) (**Table VIII).**

Discussion

The average age of our study population was 31.19 years with extremes of 12 to 51 years. Our results are similar to those reported

Characteristics		Number (N=249)	%
Age	[12-17]	02	0,8
	[17-22]	04	1,8
	[22-26]	41	16,4
	[26-31]	69	27,6
	[31-36]	81	32,6
	[36-41]	35	14,0
	41 and over	17	6,8
Marital status	Single	115	46,2
	Married	134	53,8
Profession	Student	63	25,3
	Salaried	167	67,1
	Unemployed	19	7,6
Level of education	illiterate	1	0,4
	Primary	7	2,8
	Secondary	52	20,9
	Higherlevel	189	75,9
Residence	Yaounde	221	88,8
	Out of Yaounde	28	11,2

Table I: Socio-demographic profile

Variables		Number (N=249)	%
Gestity	Primigravid	61	24,5
	Paucigravid	54	21,7
	Multigravid	134	53,8
Parity	Nulliparous	103	41,4
	Primiparous	60	24,1
	Pauciparous	39	15,7
	Multiparous	47	18,9
Prematuredelivery	Zero	240	96,4
	≤ 2	9	3,6
	> 3	0	0
Abortion	Zero	122	49,0
	≤ 2	104	41,8
	> 3	23	9,2
Mortinatality	Zero	244	98
	≤ 2	5	2
	> 3	0	0
Infertility		32	12,8

Table II: Gynaecologic and obstetrical history

Variables		Number N=249	%
Occurrence	Spontaneous	226	90,8
	Assisted	23	9,2
Number of fetus	Singleton	237	95,2
	Twins	8	3,2
	Triplet	4	1,6

Table III: Characteristics of the pregnancy

Variables	Number N=249	%
Malaria	99	39.8
Genital tract Infections	67	26.9
Anemia	66	26.5
Urinary infection	23	9.2
Hypertensive disorder	20	8
HIV	19	7.6
Hepatitis B	14	5.6
Hyperemesis gravidarum	6	2,4
Diabetes	3	1.2
Thromboembolicdiseases	2	0.8

Table IV: Diseases in pregnancy

Maternal complications	Number N=249	%
Eclampsia	7	2.8
Premature rupture of membranes	6	2.4
Abruptio placenta	4	1.6
Premature delivery	2	0.8
Threatened abortion	2	0.8

Table V: Maternal complications

by El Hamdani et al in Morocco [5], who found an average age of 31.5 years and extremes varying from 17 to 49 years and to those reported by Benabdelmalek for whom the average age was 31 years and extremes of 16 years and 50 years [6]. The most represented age group in our series were that of 31 to 36 years (32.6%). Our findings are similar to those of Benabdelmalek et al who had 31 to 35 years as the most represented age groups, but differed to those reported by Girard et al who had 20 to 25 years as the most represented age group in his study[7]. Concerning the level of education, 189 patients (75.9%) had qualifications from institutes of higher learning. These results differed greatly with those reported by El Hamdani et al who found 93% of illiterate women in his survey with a level of education not exceeding primary education in literate mothers [5]. This discrepancy could be because his study was carried out in rural areas where the level of education and literacy is often low. The majority of patients in our study population were multigravida (134 or 53.8%) and nulliparous (103 or 41.4%). This result is similar to those of Amoussou et al in Burkina Faso who also found a majority of nulliparous women (42.4%) in his study but differs with those of Girard et al in Lauraine who had 94% of primiparous women in his study [7]. This could be explained by the fact that our study was conducted in a referral hospital specializing in the management of infertility, hence the high proportion of nulliparous women.

Patients with no significant medical history represented 74.8% of pregnant women, but a history of caesarean section was found in 28 patients (11.2%). These results are similar to those of Girard et al. [6] who found that half of the women included had declared at least one significant medical or surgical history. Twinning was found in 8 (3.2%) pregnant women, Benabdelmalek et al. found a rate of 1.44%. The majority of pregnant women had good quality prenatal care. Eighty point four percent (80.4%) of the participant

	Complications					
Variables	**Threatened abortion N= 2 n(%)**	**Premature rupture of membranes (N = 6) n(%)**	**Premature delivery (N = 2) n(%)**	**Eclampsia (N = 7) n(%)**	**Perineal tears (N = 6) n(%)**	**Abruptio Placenta (N = 4) n(%)**
Malaria	1 (50)	3 (50)	2 (100)	0 (0)	2 (33.3)	0 (0)
Genital tract infection	1 (50)	2 (33.3)	0 (0)	1 (14.3)	2 (33.3)	1 (25)
Urinary infection	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (25)
Hypertension	0 (0)	1 (16.7)	0 (0)	**7 (100)**	1 (16.7)	2 (50)
Infection au VIH	0 (0)	0 (0)	0 (0)	0 (0)	1 (16.7)	0 (0)
Hepatitis B	0 (0)	0 (0)	1 (50)	1 (14.3)	1 (16.7)	0 (0)
Diabetes	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)

Table VI: Maternal complications according to the disease during pregnancy

Variables		NumberN=249	%
Outcome of the pregnancy	Abortion	9	3,6
	Premature delivery	13	5,2
	Delivery atterm	225	90,4
	Post term delivery	2	0,8
Route of delivery	Normal Vaginal delivery	155	62,2
	Instrumental delivery	3	1,2
	Elective cesarean	47	18,8
	Emergency cesarean	44	17,8

Table VII: Outcome of the pregnancy

zVariables		Number N=249	%
State of the fetusatbirth	Alive	246	98,8
	Dead	3	1.2
Morphology	Normal	248	99,60
	Malformation	01	0,4
APGAR Score	< 7	14	5,6
	≥ 7	235	94,4
Sex	Female	119	47,8
	Male	130	52,2
Weight (in grams)	1000g	05	2,0
	hypotrophy	17	6,8
	Normal	223	89,6
	Macrosomia	4	1,6

Table VIII: Fetal outcome

had 4-7 prenatal contacts and 73.5% had their first prenatal contact in the first trimester of pregnancy. These results differ with those of Benabdelmalek et al. in Morocco, who found that only 28% of women in his study population had properly followed up their pregnancy by making at least 3 antenal visits [6]. Prophylactic anti-anemic and anti-malaria (IPT) treatments were effective in the same proportion (94.8% of cases). The maternal diseases found during pregnancy in our series were: malaria in 99 cases (39.8%), genital infections in 67 cases (26.9%), anemia in 66 cases (26.5%), urinary tract infections in 23 cases (9.2%), hypertensive pathologies in 20 cases (8%), HIV infection in 19 cases (7.6%) , viral hepatitis B in 14 cases (5.8%), hyperemesis gravidarum in 6 cases (2.4%), diabetes in 3 cases (1.2%) and thromboembolic diseases in 2 cases(0.8%). The other pathologies found were Toxoplasmosis (1 case), rubella (1 case), vulvovaginal condylomatosis (2 cases), asthma (2 cases), breast cancer (1 case), and heart disease (1 case). Benabdelmalek et al. [6] in Morocco found a majority of asthma cases (27%) in his study, followed by diabetes (22%), heart disease (14.4%), epilepsy (3.6%), hypertension (3.4%), anemia (3.2%), genital warts (2.7%), HIV (2.3%), syphilis (2%), viral hepatitis B (1.8%) [6]. This is due to the fact that our study was conducted in West Africa, while that of Benabdelmalek et al was in North Africa. Hence the prevalence of diseases common to the region.

The maternal complications found during pregnancy were eclampsia in 7 cases (2.8%), premature rupture of the membranes in 6 cases (1.6%), genital tract lacerations in 6 cases (1.6%), postpartum haemorrhage in 4 cases (2.4%), threatened abortion and premature delivery in 2 cases (0.8%). Our results are similar to those of Benabdelmalek et al [6] in Morocco, who found that the most frequent maternal complications in his study were mainly hypertensive complications; however, premature rupture of the membranes and genital tract lacerations represented 14% and 12.2%, respectively, far above our results. This difference would be due to the smaller population size of our study.

In our study population, pregnancy ended in abortion in 3.6% of cases; premature delivery in 5.2% of the cases, 90.4% of the patients carried their pregnancy to term. These results were similar to those carried out in Morocco, where 12.45% of the live births were premature and 80.4% of the pregnancies came to term [6]. The vaginal route for delivery represented 63.4% and the cesarean section rate was 36.6% with 18.8% elective and 17.8% urgent cesarean sections. These results are similar to those of Benabdelmalek et al who found that the vaginal route was adopted in 66.20% of cases and 33.80% of deliveries were by caesarean section with 15.42% scheduled and 84.57% in emergency indications [6]. 52.2% (130) of newborns were male and 47.8% female, this result is similar to that of Benabdelmalek who found a male predominance of 52.20% and female 42.40% amongst the newborns in his study [6]. The newborns were of low birth weight in 6.8% and macrosomic in 1.6% of the cases which differs with the results of Benabdelmalek et al who found 12.70% of hypotrophy and 8.7% of macrosomia amongst the newborns in his study. Our study recorded 3 cases (1.2%) of IUFD and one case of the polymalformative syndrome while Benabdelmalek et al recorded 21 cases (3.73%) of IUFD and 4 cases of malformations.

Conclusion

Maternal pathologies in pregnancy at CHRACERH are mainly of infectious origin, including malaria, followed by genital and then urinary tract infections. Anemia, hypertensive disease and hyperemesis gravidarum are the three main non-infectious pathologies. Maternal pathologies in pregnancy aggravate maternal-fetal morbidity. Maternal complications are dominated by eclampsia, premature rupture of membranes, and postpartum hemorrhage. Improving the prognosis of these pregnancies requires good prenatal care.

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