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RESEARCH ARTICLE

Pregnancy and Childbirth in Elderly Primiparous Women: A 6-Month Case-Control Study at the Maternity Ward of Owendo University Hospital, Gabon

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Abstract

Advanced age during the first parturition is becoming more and more common. The occurrence of complications is widely described in this case.

Objectives: To study pregnancy and childbirth in elderly primiparous women.

Patients and method: This is a prospective and analytical case-control study carried out in the maternity ward of the Owendo University Hospital Center over 6 months. It examined pregnancy and childbirth in older first-time mothers. A case group of first-time mothers aged 29 years or older was contrasted with a control group of parturients in the same age group with previous obstetric experience. Socio-demographic parameters, pregnancy, childbirth, and postpartum outcomes were studied.

Results: A total of 1789 deliveries were recorded with 92 parturients aged 29 years or older and the control group consisted of 188 parturients. The frequency of older first-time mothers was 5.14%. For the study group, the mean age of parturients was 31.76 ± 2.80 years, with ages ranging from 29 to 40 years. Single parturients were significantly more prevalent in the study group, as were higher levels of education, longer durations of labour, and higher caesarean section rates (p = 0.000).

Conclusion: Pregnancy in elderly primiparous women is classified as high-risk due to the higher likelihood of problems. Their follow-up and delivery should be oriented towards the systematic search for fetal and perinatal risks.

Keywords: Primiparity, Advanced Age, Single, Complications, Caesarean Section, Owendo (Gabon)

1. Introduction

Pregnancy and childbirth are universal biological processes that occur within a family and a society [1]. In all societies, childbirth is experienced as a happy event. It is also a distressing experience for the pregnant woman, her family and the obstetrician in charge because its outcome is uncertain [2]. A primiparous woman is one who has no previous childbirth experience. According to the International Federation of Gynecology and Obstetrics (IFGO) and the World Health Organization (WHO), the elderly primiparous woman is one who is aged 35 years or older and is giving birth for the first time [3, 4]. However, the age limit is not universally agreed upon and remains controversial, with some publications setting it at 30 years and others at 35 years [5]. Globally, for many reasons, the age of childbearing continues to increase, particularly in Western countries, thus becoming a real social phenomenon [6]. It has gradually increased over the years. In Europe, it has increased from 28.1

years in 2010 to 31.6 years in 2021, and in the USA it rose from 25.4 years to 27 years in 2019. According to the latest demographic and health surveys (DHS), our regions have undergone identical variations [8, 9]. Pregnancy in this context, has always been a concern for birth attendants. These risks are linked to both primiparity and advanced age. They are often referred to as precious pregnancies and are referred to as high-risk pregnancies (HRP).[10] The literature reports high rates of complications during pregnancy as well as in intrapartum and postpartum for these women compared to those in their twenties [11, 12, 13]. In our environment, the management of pregnancy is difficult and the occurrence of complications can increase maternal and perinatal morbidity and mortality. Our study takes stock of the so-called elderly women who gave birth for the first time in our maternity ward for future corrective actions.

2. Patients and Method

This is a prospective and analytical case-control study. It was carried out in the maternity ward of the Owendo University Hospital Center (OUHC) from July 1 to December 31, 2023. That is 6 months. The study has focused on pregnancy and childbirth in older first-time mothers. The OUHC is a reference maternity hospital located on the outskirts of Libreville. It delivers about 5000 babies annually and houses a neonatal and surgical resuscitation department. It is classified as a level 3 facility. Owendo is a commune located southwest of the Estuary, an industrial zone with 79300 inhabitants according to the 2021 general population and housing census. The study population consisted of all parturients who had given birth at the OUHC maternity ward during the study period. We included first-time parturients aged 29 years or older, as well as parturients in the same age group with previous obstetric experience (those who had already given birth at least once). We excluded parturients under 29 years of age, those who delivered at home, and those who refused to participate in the study.

We thus opposed 2 groups of patients. A group of cases consisting of first-time mothers aged 29 years or older and a control group. The control group. We confused the 2 groups on the events of pregnancy, childbirth, and those of postpartum. Thanks to the interview and the pregnancy monitoring diary, we collected information on the socio-demographic profile, the medical and surgical history, the pregnancy. We searched for the place of pregnancy follow-up, the care provider, the number of prenatal

contacts, the paraclinical assessment carried out and the occurrence of pathologies during pregnancy that motivated a consultation or hospitalization. For childbirth, we contrasted them on the duration of labour, maternal or fetal incidents (fetal distress) and the state of the perineum after the expulsion of the product of conception (episiotomy or tear). The route of delivery and maternal and perinatal morbidity and mortality. This methodology allowed us to assess sociodemographic parameters, those related to pregnancy, childbirth, postpartum and those of the newborn. The data was entered using Microsoft Excel software. The statistical analysis was done using the Epi InfoTM® 3.5.4 software. Data were expressed as a percentage for qualitative variables and as average standard deviations for quantitative variables. These variables were compared with each other using the Chi2 test, the Chi2 corrected by Yates (n between 3 and 4) and the exact Fisher test (n < 3). The difference was considered significant for a *p-value* < 0.05.

3. Results

During the study period, 1789 deliveries were recorded and 92 parturients were 29 years of age and older and the control group was 188 parturients. The frequency of older first-time mothers was 5.14%. For the study group, the mean age of parturients was 31.76 ± 2.80 years, with extremes of 29 to 40 years. For controls, the mean age was 34.04 ± 3.78 years with extremes of 29 to 44 years. Patients with single status were significantly found in the study group compared to the control group, and the same was true for the higher level of education (p = 0.000). For gynaecological pathology, the history of Chlamydia trachomatis infection and uterine fibroids was significantly found in the study group and the same was true for the use of contraception (Table 1). Patients in the study group appeared to be significantly followed in hospitals and university centres and those in the control group in maternal and child health centres (p = 0.000). For the health care provider, the preference was the doctor for the study group and midwives for the control group (p = 0.000). The number of prenatal contacts made did not make it possible to distinguish the 2 groups in a significant way. However, beyond 5 contacts, pregnancy follow-up appeared to be more regular for the study group compared to the control group (p = 0.007). The prenatal work-up was significantly complete for the patients in the study group. The same was true for the control group when it was incomplete (p = 0.000).

Preeclampsia was the main pathology encountered during pregnancy for the 2 groups (18.7% versus 14.9%) and the results were identical when no pathology was found (p = 0.787). At delivery, the gestational term did not differentiate between the 2 groups when the pregnancy was at term (p = 0.880) and before term (p = 0.281). The duration of labour was significantly short for the control group (p = 0.000). After 6 p.m., the rates were identical in the 2 groups with no appreciable difference (p = 0.771). The caesarean section rate was 45.7% in the study group versus 7.4% and the 2 groups were juxtaposable when there were no complications for either the mother or the fetus (p = 0.930). Pelvic floor lesions were found in the study group with a significant difference compared to the study group where the perineum was often intact (p = 0.025). In the postpartum period, the main complication was postpartum hemorrhage, which was significantly more frequent in the study group (p = 0.000). For the new-borns, the two groups seemed identical in terms of APGAR scores, birth weight, and perinatal death. However, the trend was significantly favorable for neonatal intensive care unit stays for the newborns in the study group (p = 0.024).

Table 1. *Socio-demographic profile of parturients*

Variables studied	Case n/%	Witness n/%	OR	IC	p
Marital status					
Bachelor	40/43,5	42/22,3	2,68	[1,507- 4,730]	0,000
Married	14/15,2	39/20,7	0,68	[0,323-1,387]	0,267
Level of education					
None	1/1,1	4/2,1	0,50	[0,010-5,214]	0,536
Upper	72/78,3	62/33	7,31	[3,958-13,780]	0,000
Pathologies					
None	53/57,6	171/91	0,135	[0,664-0,269]	0,000
Myomes utérins	25/27,2	8/4,3	8,39	[3,431-22,435]	0,000
Contraceptive use					
Yes	17/18,5	7/3,7	5,860	[2,335-14,713]	0,000
Not	75/81,5	181/96,3			

Test chi 2 de Pearson

Table 2. *Pregnancy follow-up*

Variables studied	Case n/%	Witness n/%	OR	IC	p
Follow-up location					
UHC	35/38	36/19,1	2,59	[1,428-4,688]	0,000
MCC (Maternal and Child Care)	47/51,1	130/69,1	0,46	[0,270-0,804]	0,000
Healthcare Provider					
Doctor	35/38	30/16	3,23	[1,747-5,977]	0,000
Midwife	57/62	158/84	0,30	[0,167-0,572]	0,000
Prenatal contact					
[6-8]	64/69,6	99/52,7	2,05	[1,176-3,627]	0,007
9[	15/16,3	12/6,4	2,85	[1,180-7,000]	0,008
With prénatal					
Complete	70/76,1	100/53,2	2,80	[1,555-5,141]	0,000
Incomplete	22/23,9	88/46,8	0,35	[0,194-0,642]	0,000
Pathologies identified					
Pre-eclampsia	17/18,5	28/14,9	1,31	[0,631-2,661]	0,420
No	60/65,2	127/67,6	0,92	[0,530-1,643]	0,787

Test chi 2 de Pearson

Table 3. *Parameters of childbirth*

Variables	Case n/%	Witness n/%	OR	IC	P	
Term (WA)						
]37	11/12	15/8,0	1,56	[0,619-3,826]	0,281	
40[	30/32,6	63/33,5	0,96	[0,542-1,682]	0,880	
Working hours (H)						
]8	7/7,6	87/46,3	0,16	[0,059-0,398]	0,000	
18[	1/1	1/0,5	1,51	[0,018-120,118]	0,771	
Route of delivery						
High	42/45,7	14/7,4	10,44	[5,280-20,643]	0,000	
Bass	50/54,3	174/92,6	0,09	[0,044-0,197]	0,000	
Pelvic floor condition						
Tear	18/19,6	36/19,1	2,15	[1,014-4,479]	0,025	
Episiotomy	14/15,2	3/1,6	22,16	[5,667-123,919]	0,000	

Table 4. *Trend in the risk of perinatal morbidity and mortality*

Variables	Case n/%	Witness n/%	OR	IC	P
APGAR					
]3	3/3,3	6/3,2	1,02	[0,161-4,919]	0,975
[8	77/83,7	152/80,8	1,21	[0,604-2,541]	0,562
Weight (g)					
[1000-2000]	4/4,3	3/1,6	2,80	[0,461-19,466]	0,165
[4000	6/6,5	9/4,8	1,38	[0,392-4,522]	0,544
Stay in intensive care					
Yes	8/8,7	5/2,7	3,480	[1,107-10,974]	0,024
Not	84/91,3	183/97,3			
Perinatal death					
Yes	2/2,2	2/1,1	2,070	[0,286-14,909]	0,462
Not	90/97,8	186/98,9			

4. Discussion

The age chosen to designate elderly primiparous women is not consensual. Most authors have selected 35 years [3, 4], while others consider 30 years, and no study mentions the actual age [14, 15]. A study by Tebeu PM et al suggested around 26 years old. In this case-control study, significant risks were noted around the age of 31 and under 24 years [5]. Thus, we arbitrarily selected 29 years and older, with the control case being those of the same age who have already given birth one or more times. We excluded those under 29 years of age, as they appear to be at low risk [16]. The literature is abundant in publications in this direction [17, 18, 19]. We report on our local data as no national data were found, but according to the Gabonese DHS, the average age at first birth has changed [8].

This phenomenon is widespread nowadays, with more women postponing their first motherhood. Our study did not explore the motivations for this late parturition. However, common causes include the lack of a spouse, the search for the ideal father, studies, professional accomplishment, and socio-spiritual reasons [20]. We found 5.1% of cases, while Sidibé D in Mali, Mwenyemal J et al in the DRC, and Jellouli W in Morocco found 0.6%, 1.5%, and 2.36%, respectively [12, 21, 22]. Outin C in France reported 0.37% [23]. Our number is high due to the low age used to define elderly primiparous women, unlike other series where the minimum age was 35 years. Sidibe D stated that the frequency of elderly primiparous women depends on the chosen age; as age decreases, frequency increases [12]. In our series, the majority were unmarried (84.8%) and 78.3% had a higher level of education compared to those who

had already given birth. Other authors found 69.3% and 61%, respectively, for the level of education [12, 21].

Nowadays, women are studying longer, and several publications show that the number of women enrolled in universities continues to grow as they aspire to professional careers [24, 25]. Consequently, the age of first motherhood is postponed, and the vast majority are single, which can lead to complications. In our context, marriage is expensive and requires substantial financial means. As a result, few women marry in Gabon, often at a late age. There is a significant prevalence of uterine fibroids, a pathology often associated with late pregnancies due to its role in infertility. LOPES found that 77.7% of pregnant women with myomatous uteruses were over 31 years old, and 37% had a history of uterine myoma [26].

Our results show that older first-time mothers have an 8.4-fold increased risk of having myomas, and conversely, patients with fibroids have an 8.4-fold increased risk of becoming elderly primiparous [27]. The use of contraception was significantly higher in older first-time mothers (P=0.000) at 18.4%. Jellouli W in Morocco reported 3.5% [22]. In Gabon, contraceptive use is higher in the 20-29 age group, at 83% [8]. Contraception use was necessary for this group to implement their social and pregnancy plans. For older first-time mothers, pregnancy seems delicate; thus, 38% prefer the CHU for pregnancy follow-up versus 19.1%, with the doctor being the primary care provider (p=0.000). These pregnancies, often considered precious, require rigorous follow-up to ensure a favourable outcome for both mother and child. WHO recommendations for antenatal care to make pregnancy a positive experience are relevant, and the physician plays a crucial role [28].

Older first-time mothers tend to have more prenatal contacts compared to those with previous obstetric experience, who place less importance on ANC (p=0.000). These women take pregnancy follow-up very seriously as they are eager to have a child, sometimes after several unsuccessful attempts or a long period of infertility. Pregnancy monitoring is necessary because the occurrence of pathology is frequent, with hypertension being the most common (18.7%). Chamout FZ and Jellouli W found 12% and 10.5%, respectively [20, 22]. In our series, the occurrence of pathology was not significant, although more observed in the study group. However, the literature indicates that the risk of developing pathology during pregnancy increases significantly with age [29, 30, 31]. Age-related factors such as obesity, high blood pressure, and dysovulation increase the risk [32].

The gestational term at delivery was similar in both groups, with no appreciable difference, and the pregnancy was often at term (70.7% vs. 79.3%). Chamout FZ reported 80% and Mwenyemali J. 81.8% [20, 21]. Elderly first-time mothers benefit from meticulous monitoring, allowing for quick detection and management of complications that could lead to premature delivery. The lack of difference between the two groups is not surprising as they are identical in age, with parity being the differentiator, causing a significant bias in our series. According to Tebeu et al., the risk trend begins beyond the age of 24 [5]. The under-24s could have been the control group. The duration of labor was that of a multiparous woman for the control group compared to the study group (p=0.000).

Regarding the mode of delivery, vaginal delivery was found in 54.3% of parturients in the study group compared to 92.7%. Thus, 45.7% of elderly primiparous women gave birth by caesarean section compared to 7.4%. These results align with those of Sidibe D (52.5%) and Jellouli W (42.5%) [12, 22]. Konaté A found 32% with no significant difference between the two groups [33]. The risk of having a caesarean section is multiplied by 10.4 in elderly primiparous women. This risk increases continuously from the age of 26 and is linked to the vascular bed and weight gain [5]. The precious nature of pregnancy often leads practitioners to opt for caesarean delivery to avoid risks, often at the wish of parturients [34].

The majority of newborns studied had a good adaptation to extrauterine life, with 16.3% having an Apgar score ≤ 7. Jellouli reported 18.31% [22], and Sidibé D found a much higher rate at 34.28% [12]. This difference could be due to the older age of parturients in her study. Neither birth weight nor perinatal death (p = 0.462) allowed differentiation between the two groups, apart from neonatal intensive care unit stays, which were significantly higher in the study group.

5. Conclusion

Our study is based on the recruitment mode. The participants should have been those under 29 years of age, even though it seems that the risk is already significant from the age of 26. However, advanced-age primiparity is becoming a real social problem, as more and more women have their first child at an

older age. Several reasons contribute to this trend; many women choose to delay motherhood to pursue extended education and build professional careers. Others, on the other hand, are eager to have children but suffer from infertility. Whatever the reasons, these late motherhoods are not without consequences. Indeed, these pregnancies are often associated with an increase in medical and obstetric pathologies. Considered high-risk pregnancies, the use of cesarean sections and stays in neonatal intensive care are often common. Special perinatal monitoring is necessary.

Conflict of interest

We declare no conflict of interest in the development of this manuscript.

Authors' contribution

B. Sima Ole, S. G. Mba Edou and D Assoume designed the research protocol and wrote this manuscript. L. Massay, T Reindah, W. Dikongo, O. Mounguengu1, G Madi Tigana1 collected the data. J.A. Bang Ntamack, S. Mayi Tsonga and J. F. Meye gave the form to this manuscript. All authors approved the final version.

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