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Maternity at Extreme Ages of Reproductive Life: Maternal and Perinatal Morbidity and Mortality in West African Country (Benin)

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Abstract

Objective: To study morbidity and mortality related to maternity at extreme ages of reproductive life in two teaching hospitals at Cotonou in West African country (Benin).

Materials and methods: This was a descriptive retrospective cross-sectional study over a period of 9 months. It focused on the cases of women under 18 and over 35 years old. The variables studied were maternal and perinatal morbidity and mortality. The statistical analysis was performed using the software EPI INFO 3.5.4.

Results: Of 5424 deliveries registered during the study period, 874 women (99 under 18 years and 775 above 35 years) were in extreme ages, the frequency of 16.1%. Early maternity was more common among students (51.4%) and late maternity in informal sector workers (84%). The main complications found were Immediate Post-Partum Haemorrhage (IPPH) and soft tissue lesions. Perinatal morbidity was high with 11.4% of new-born in apparent death status in early maternity and 2.8% in late maternity. Maternal vital prognosis was good in both subgroups. Perinatal mortality was high.

Conclusion: Maternity at the extreme ages of reproductive life, whether early or late, remains a high risk maternity.

Keywords: Early maternity; Late maternity; Morbidity; Mortality

Introduction

There is an increasing decline in the age of motherhood in Africa, which used to be the preserve of Western societies. This situation can be explained by various reasons including infertility, late remarriage and the promotion of schooling, especially that of girls who are more and more involved in long-term studies. However, early maternity still remains prevalent in sub-Saharan Africa, particularly in rural and disadvantaged areas. In Benin, according to the EDS IV, 13.2% of women aged 15-19 have already had a live birth and 3.2% are pregnant with a first child [1].

Early or late maternal age classifies pregnancy as a high-risk pregnancy. Indeed in the teenager certain complications such as anemia, miscarriages and traumatic lesions, toxaemic are often observed. Clandestinity leading to insufficient prenatal follow-up, nutritional deficiencies, poor lifestyle habits (tobacco, toxic) and stress are the main explanatory factors. As for pregnancy at a late age, it generally develops on a terrain of defects (arterial hypertension, diabetes, nephropathies) and is therefore at increased risk of various complications in the mother and in turn, in the fetus and the newborn. [2]. No studies in Benin have compared the risks of early and late maternity. The aim of our study was to study maternal morbidity and mortality at the extreme ages of reproductive life.

Materials and Methods

It was a descriptive retrospective cross-sectional study conducted at Cotonou West African country (Benin). The study framework was the University Clinic of Gynecology and Obstetrics (CUGO) of the Hubert Koutoukou Maga National and University Center (CNHU-HKM) and at the University Hospital Center. Mother and Child Lagune (CHU-MEL). It covered a period of nine months, from June 1, 2016 to February 28, 2017. We include the records of all pregnant women, referred or not, under 18 years (early maternity) or 35 years of age and older (late maternity) and having given birth to a newborn baby of at least 28 weeks. Given the defined study period and the exhaustive nature of the recruitment, the sample size calculation was not necessary. The sample is representative for the nation because although those hospitals are university hospital they receive patients of all social categories, Variables were related to maternal and perinatal morbidity and mortality.

The data was captured and analyzed by the EPI-INFO software version 3.5.4 and EXCEL 2010.

Results

During the study period, 5424 deliveries were recorded in the two health facilities, including 874 at the extreme ages of reproductive life (16.1%).

Maternity at an early age and those at late age accounted for 1.8% and 14.3% of all deliveries, respectively.

The average age of early maternity was 16.4 years and the youngest mother was 14 years old. The average age of late maternity was 37.6 years and the oldest mother was 50 years old (Table 1).

Deliveries	Number	Proportion (%)
Early deliveries	99	1.8
Late deliveries	775	14.3
Other	4550	83.9
Total	5424	100.0

Table 1: Distribution of the deliveries.

In our sample, 51.4% of women who gave birth early were students, while 84.7% of women who gave birth late were informal sector workers (reseller, hairdresser, seamstress, housewife, etc.) (Table 2).

Profession	Early maternity		Late Maternity	
	Number	%	Number	%
Informal sector Agent	16	45.7	182	84.7
Civil servant	0	0.0	23	10.7
Student	18	51.4	1	0.5
Liberal profession	0	0.0	4	1.8
workless	1	2.8	5	2.3
Total	35	100.0	215	100.0

Table 2: Distribution of post-partum women by profession/occupation.

Early deliveries were primigest in 85.7% and primiparous in 91.4% of cases. The late-onset mothers were multigestes (gestational 4 to 5) in 43.3% of cases, multiparous (parity 4 to 5) in 43.7% of cases and large multiparous (parity 6 or more) in 25.6 % of cases.

The pathologies found during pregnancy was preterm labour (22.9%), toxemia (20%), urinary infection (11.4%) and anemia (2.9%) in early maternity. For the late maternity we found also toxemia (56%), Preterm labour (17%) and Urinary infection (11%) for late maternity.

Prematurity accounted for 31.4% of births in early maternity and 25.1% in late maternity.

Fetal heartbeats were negative at admission in 2.9% of early maternity and in 10.7% of late maternity.

Caesarean sections have been performed in 40.0% in early maternity and in 41.9% in late maternity.

The soft tissue lesions and the interventions during the delivery were studied only in the vaginal delivery, which reduced the number to 21 for the early maternity and 125 for the late maternity. An immediate post-partum haemorrhage was reported in in 8.6% of early maternity and in 13.0% of late maternity.

9.4% of early deliveries delivered by vaginal route had perineal lesions compared with 2.4% of late maternity. Episiotomy was performed in 38.1% of early maternity *versus* 1.6% in late maternity. There were no maternal deaths in the two maternity subgroups. Table 3 presents the different complications of childbirth (Table 3).

Complications	Early maternity		Late maternity	
	Number	%	Number	%
Blood lost				
IPPH*	3	8.6	28	13.0
Total	35	100.0	215	100.0
Lesion of soft tissue				
Cervix tears	1	4.8	1	0.8
Vaginal tears	1	4.8	1	0.8
Perinatal tears (2nd degree or more)	2	9.4	3	2.4
Total	21	100.0	125	100.0

Table 3: Distribution of the post-partum woman according to complications and/or intervention during delivery; *IPPH: Immediate Post-Partum Haemorrhage

APGAR score ≤ 3 compared in 11.4% of early maternity compared to 2.8% of late maternity.

31.4% of newborns of early-born women had a low birth weight (<2500 g) against 22.3% of late-born women. Two cases (0.9%) of hydrocephalic malformations were recorded in mothers aged 35 years. Table 4 shows the distribution of newborns according to the newborn examination data (Table 4).

Newborn data	Early maternity		Late maternity	
	Number	%	Number	%
APGAR score at first minute				
≥ 7	28	80.0	172	80.0
04-Jun	1	2.9	9	4.2
≤ 3	4	11.4	6	2.8
Still-born	2	5.7	28	13.0
Total	35	100.0	215	100.0
Weight at delivery				
<2500 g	11	31.4	48	22.3
2500-4000 g	24	68.6	162	75.4
>4000 g	0	0.0	5	2.3
Total	35	100.0	215	100.0

Table 4: Distribution of the post-partum women according to the data of the newborn examination.

The most common pathology in the postpartum period was renal vascular syndrome with almost identical frequency in both groups (17.1% in mothers of early age *versus* 17.2% in mothers of age late). 2.9% of first-time deliveries spent two weeks or more in hospital *versus* 1.4% of late-onset women.

Discussion

Frequency of motherhood at extreme ages of reproductive life

The frequency of motherhood at the extreme ages of reproductive life was 16.1%. Late maternity (14.3%) was six times more common than early maternity (1.8%). Mumba et al. found in a study done in Lubumbashi a prevalence of 31.3% for childbirth at extreme ages. Parturient aged 35 years or more accounted for 27% by far higher than those under 20, (4.2%) [3]. Salem et al. in Tunisia, in a study of 13225 women given birth at extreme ages, found a frequency of 22.5%. Of these 87.2% were 35 years of age or more, and 12.8% were under 19 years of age [4]. The variation in frequencies from maternity to extreme ages is related to the difference between the thresholds set in each of the studies to define early maternity. For Mumba et al. these were births under the age of 20 and for Kamel et al. those under 19 years old. As for our study we considered as early maternity those under 18 years in accordance with the family code in force in the Republic of Benin that sets the age at marriage to 18 years. All three studies agree on the frequency of late maternity, which is 6 to 7 times higher than that of early maternity. This trend is a consequence of the socio-economic transition in modern society, which is generally characterized by women's increasing access to schooling and employment, a phenomenon that can influence reproductive behaviour and delay children's lives age of marriage [4,5].

Socio-demographic characteristics

Tebeu et al., in a study conducted in Yaounde in 2004 on the deliveries at extreme ages of reproductive life, considered early maternity under 16 years and late maternity above 40 years. He found an average age of 15.5 years. In early maternity and 41.1 years in late maternity, ranged from 40 to 46 years [6]. In a study done at Brazzaville University Hospital Center on pregnancy and childbirth in Congo, Iloki et al. found that the average age was 14 years and 5 months, and the youngest was 10 years old [7]. In our series, the mean age of early maternity was higher (16.5 years) compared to the Tebeu series (15.5 years). This difference could be attributed to the socio-cultural differences between the two countries on the one hand and the efforts to raise awareness of early pregnancy, the popularization of contraception and schooling on the other. Indeed, school can delay entry into fertile life and adolescent girls who do not have school or works to occupy their time are often at high risk of engaging in unprotected sexual activity [8].

Our study shows that 51.4% of women who gave birth at an early age were students. For Iloki et al. 41.6% were in school and 51.1% had dropped out of school [7]. This dropout rate is aggravated by the difficulty of returning to school after childbirth. The early entry of girls into fertile life greatly reduces their opportunities, especially school and professional, resulting in an even greater marginalization of these girls [9]. Nearly all late-onset women have a job in the informal sector (84.6%). This is understandable when one of the reasons that push women to delay motherhood is the search for a job.

Pathologies during pregnancy

The occurrence of risk, particularly in adolescence, suggests the hypothesis that immaturity of adolescent girls may be a biological risk factor for preterm delivery [6].

Preterm delivery (22.9%) and toxemia of pregnancy (20.0%) were the most common pathologies found during pregnancy in women of early age. In a study conducted in Congo Brazzaville, Iloki et al. found that the most common pathologies among pregnant adolescents were urinary tract infection (16.6%) followed by toxemia of pregnancy (9.3%) and preterm delivery (6.8%) [7]. In the series of Soula et al. the most common pathologies experienced by adolescents under 15 years of age were preterm delivery (16.3%), followed by anaemia (16.9%) and toxemia (7%) [8].

In women of late age the same pathologies have been found. But toxemias of pregnancy lead with a proportion of 26.0% followed by preterm delivery 7.9%. For Meriem et al, the most common pathologies in late maternity were toxemia of pregnancy (19%), infections (19%) and diabetes (12%) [10]. We found the same pathologies as those described in the literature but at different proportions.

Maternal complications of childbirth

Complications of childbirth encountered in both subgroups of our study were Immediate Postpartum Hemorrhage (IPPH). The IPPH has complicated 13% of deliveries in case of late maternity and 8.6% in case of early maternity. This higher frequency among late-born women appears to be related to the parity of these women. They were indeed multiparous with a uterus that retracts poorly after childbirth.

Soft tissue lesions, on the other hand, were found with a higher frequency (19%) in the case of early maternity compared to 4% in the case of late maternity. This could be related to the immaturity of the organs that have not yet reached their full development and to a lower elasticity of the soft tissues of these young women, most often primiparous.

These data confirm those of Mumba et al. who also noted that soft tissue lesions were the main complication in adolescents with a frequency of 9.4% and that bleeding from delivery was the major complication in elderly parturient (3.0%) [3].

Neonatal morbidity

Prematurity accounted for 31.4% of births in early-onset women in our study. It accounted for 8.8% of deliveries for Sience and 19% for Soula et al. [9,11]. In the literature, the frequency of premature delivery among adolescent girls varies between studies, from 4.7% for Hamada in Morocco to 33.3% for Tebeu at Yaoundé University Hospital [6,12]. Our results for premature newborns (31.4%) are close to those in Tebeu (33.3%). This low rate in Hamada (4.7%) could be explained by the methodology used. Indeed the term of pregnancy was calculated from the precise date of the last period and 68% of adolescent girls in labour had an imprecise term. This high rate of imprecise term surely biased the calculation of the rate of prematurity [6,13]. In our study, prematurity accounted for 25.1% of deliveries in women of late age. Our results were higher than those in the literature, which found figures ranging from 5.4% for Kamel to 20% for ICSIS [4,14].

State of the newborn at birth

In early-onset mothers, we recorded 11.4% of neonates in a state of apparent death compared to 2.8% of mothers of late age.

With regard to birth weight, macrosomia was noted in mothers of late age (2.3% of newborns) and low birth weight more frequent in early maternity (31.4% *vs* 22.3%).

According to Belaisch-Allart, a significant number of macrosomes or newborns weighing more than the 90th percentile are found by several authors in the maternal age group 35-39 or in elderly multiparous women [15]. This could be explained on the one hand by progressive dystocia and on the other hand by the frequency of gestational diabetes in women of late age.

Sience et al. explain the low birth weight in early-onset women by the frequency of iron-deficiency anemia in this category [9]. Several studies attribute this risk of low birth weight to the factors that can be associated with young maternal age: Anemia, maternal physical state, premature delivery, pathologies associated with pregnancy, insufficient maternal weight gain, maternal nutritional status and quality of pregnancy follow-up [11].

No apparent physical malformation was found in neonates of early-onset women. Two cases of hydrocephalus have been found in neonates of elderly mothers. Indeed, for Belaisch-Allart, congenital malformations increase with maternal age, reaching 2% to 3% at age 40 [15].

Maternal and perinatal mortality

No cases of maternal death were noted in the two subgroups of our study.

In utero death (MIU) was found approximately three times more frequently in late maternity (9.9%) than in early, aternity (2.9%) Iloki, in a study done in Brazzaville had found a frequency of MIU of 4.3% in teenage girls. This seems to be due more to the pre-existing pathologies of pregnancy (diabetes, hypertension) which are more frequent in older women (7.2% are hypertensives) than to feticide pathologies that occurred during pregnancy [7].

Perinatal mortality was 5.7% in the early maternity and 13% in the late. This higher mortality among late maternity is due to the higher number of in utero death in this subgroup.

Conclusion

Young and older women are more at risk of maternal-fetal complications during pregnancy. It is desirable that further studies be conducted to identify to identify associated factors and to better guide prevention.

Ethical Aspects

Authorization of the responsible hospitals and maternity hospitals was obtained before the start of the study. The anonymity of the patients and the confidentiality of the data were respected.

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