



Research Article

Prognosis of Childbirth at the Extreme Ages of Reproductive Life

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Abstract

Introduction: Childbirth of women at extreme ages is a risk factor for maternal and newborn morbidity and mortality. The objective of this study was to test the hypothesis that the outcome of childbirth is comparable to the extreme ages of reproductive life.

Methodology: This was a descriptive and analytical type prospective study lasting 6 months from October 1, 2019 to March 31, 2020, carried out at the maternity hospital of the Ignace Deen National Hospital (CHU of Conakry) Guinea; study of a continuous series of parturients at extreme ages.

Results: The study involved 716 deliveries in women at the extreme ages of reproductive life out of a total of 2967 deliveries, a frequency of 24%. The average age was 17.93 1.15 years for adolescent girls and 37.38 2.36 years for women 35 years and older. Adolescent girls were predominantly primiparous (82.13%) and elderly parturient women mostly multiparous (66.66%). Prenatal follow-up was adequate in the (2) groups (84.84% versus 89.06%). Risks were comparable in adolescent girls and women 35 and over, for example: prematurity (6.20% versus 5%), post-term (3.10% versus 3.57%) and stillbirth (4.86% versus 4.28%). Other risks are significantly higher in adolescent girls, namely: dystocia (13.12% versus 5.16%, cesarean delivery (39.36% versus 25.92%) and low

birth weight (13.05% versus 5.16%). However, the risks are greatly increased in the elderly parturient, namely: uterine rupture (2.92% versus 1.15%); post-partum hemorrhage (6.93% versus 3.16%) and fetal macrosomia (11.07% versus 3.54%). We recorded 4 maternal deaths among adolescent girls, i.e., a lethality of 9 and a death among elderly parturient, i.e., a lethality of 3.6.

Conclusion: At the end of this work, it appears that for certain risks, adolescent parturient and those 35 years of age are entirely comparable. Other risks are significantly increased by advanced age or adolescence alone. Specialized joint monitoring could be envisaged for these two (2) categories of the population, with particular emphasis on certain aspects specific to each group.

Keywords: Childbirth; extreme maternal ages; Guinea

Introduction

Pregnancies at extreme ages of reproductive life are considered high-risk pregnancies [1]. Pregnancy outside the 19-34 age range is a risk factor for maternal and fetal mortality [2]. The literature reports high rates of complications of childbirth and pregnancy fate for these two (2) groups of women compared to those in their twenties [3]. Theoretically on the basis of vascular prejudices marked by hypo arterialization evoked in adolescent [4] and decreased utero placental blood flow observed in elderly women [5] such as: cesarean delivery, stillbirth and intrauterine growth retardation. Other risks are significantly increased in adolescent girls, namely postterm, prematurity and acute fetal asphyxia; macrosomy, on the other hand, is more common in older parturients [6].

In industrialized countries, women give birth at an increasingly advanced age, in France the average maternal age at birth is 30 years. This increase in maternal age is multifactorial due to the transformation of family models and social norms: lengthening of the duration of studies, career choices, late union, financial reason and the availability of contraceptive means [7,8]. The report of the National Committee of Experts on Maternal Mortality (CNEMM) in France published in 2010, covering the period of deaths from 2001 to 2006, shows that the risk of maternal mortality is two (2) times higher from 15 to 19 years than from 20 to 29 years, three (3) times more than 35 to 39 years than 20 to 24 years, five to eight times more than 40 to 44 years and fifteen to thirty times more than 45 years. In 2012, the World Health Organization (WHO) [9] estimates that nearly 16 million girls under the age of 15 give birth worldwide each year. An assessment of the importance of risk between the two (2) groups can contribute to the planning of common obstetric care in order to prevent risks and reduce costs.

The aim of this work was to contribute to the study of the prognosis of childbirth at the extreme ages of reproductive life in a reference maternity in Guinea.

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More specifically, they were:

- To describe the socio-demographic characteristics of women at the extreme ages of reproductive life
- Describe the complications of childbirth at the extreme ages of reproductive life
- To establish the maternal and fetal prognosis

Patients and Methods

Study

It was a descriptive and analytical prospective study lasting 6 months from 1 October 2019 to 31 March 2020; performed at the maternity ward of the Ignace Deen National Hospital (CHU de Conakry) in Guinea. The study involved a continuous series of 716 patients of extreme age admitted to the service for delivery regardless of the outcome of their pregnancy; Study comparing the two (2) populations involved: Women under 20 and women over 35. The data were collected from birth records, medical records and interviews in the patient's bed. The data was captured and analyzed using the SPSS software. For data analysis in the comparison of the two (2) populations, Pearson's chi-square was used with a significance threshold of 5% (p=0.05).

Operational definitions

The study variables were:

a. Maternal age:

- **Advanced Age:** Any person whose age is 35 years or older
- **Young age:** Any person whose age is less than or equal to 19 years

b. Gestational age: delivery is said:

- **Premature:** if the term of pregnancy is less than 37 weeks of amenorrhea
- **Post-term:** if the term is greater than or equal to 42 weeks of amenorrhea

c. Other variables:

- Marital status, education level, parity, inter-reproductive interval (interval between two pregnancies), intake mode, NHC number, NHC location, maternal morbidity and mortality, fetal profile, fetal weight (macrosomy if fetal weight greater than 4000g; low birth weight if fetal weight less than 2500g); perinatal morbidity and mortality (sum of deaths after 28 weeks of amenorrhea; stillbirth rate and children dying during the first week equal early neonatal mortality) in relation to the total number of births.

NB: there was no conflict of interest.

Results

Frequency

During the study period, there were 716 births in women at the extreme ages of reproductive life out of a total of 2,967 births, or a frequency of 24% of all births, there were 732 newborns (16 twin pregnancies, of which 10 are adolescent and 6 are over the age of 35). Adolescent girls numbered 442 (15%) with an average age of 17.93 1.147 and extremes of 13 and 19 years. Women who gave birth after a late pregnancy (Age greater than or equal to 35 years) numbered 274 with an average age of 37.38 2.357 years and extremes of 35 and 47 years.

Socio-demographic characteristics (Table 1)

Features	Age group				Total		P
	< 20 years		≥ 35 years		Workforce	Percentage	
	Workforce	Percentage	Workforce	Percentage			
Occupation							0.0000
Housewives	135	30.54	93	33.94	228	31.84	
Student/Student	176	39.81	2	0.73	178	24.85	
Liberal function	129	29.20	124	45.26	253	35.35	
Employee	2	0.45	55	20.07	57	7.96	
Marital status							0.0000
Bride	397	89.82	274	100	571	79.75	
Single	44	9.96	0	0	144	20.11	
Divorced	1	0.22	0	0	1	0.14	
Level of Education							0.0800
Not in school	189	42.77	148	54.01	337	47.06	
Primary	81	18.32	56	20.43	137	19.14	
Secondary	153	34.62	17	6.21	170	23.75	
Superior	19	4.29	53	19.34	72	10.05	
Parity							0.0000
Primipare	363	82.13	18	6.57	381	53.21	
Paucipare	75	16.97	75	27.27	150	20.95	
Multipare	4	0.90	181	66.06	185	25.84	
Inter-reproductive interval							0.005
Less than 6 months	68	15.38	21	7.66	395	55.17	
Greater than/equal to 6 months	374	84.62	253	92.34	321	44.83	

Method of admission							0.2
Coming from home	379	85.74	254	92.70	633	88.41	
Evacuated	63	14.26	20	7.30	83	11.59	
Number of NICs							0.0000
0	1	0.22	0	0	1	0.14	
1-2	66	14.93	30	10.95	96	13.41	
3-4	375	84.85	244	89.05	619	86.45	
Location of NHC							
Health Centre	237	53.62	93	33.94	330	46.09	
Municipal Medical Centre	54	12.22	35	12.77	89	12.43	
CHU	61	13.80	87	31.74	148	20.67	
Private structures	89	20.13	59	21.53	148	20.67	
Not specific	1	0.22	0	0	1	0.14	

Table 1: Socio-demographic characteristics.

Characteristics of childbirth (Table 2)

Prognosis

Maternal prognosis

- **Maternal morbidity:** Complications in childbirth occurred in women aged 35 and under, with slightly more in women aged 22.17 (98/442) versus 15.32% (42/274) (Table 3)

Maternal mortality: we recorded 4 maternal deaths in adolescent girls either a maternal lethality of 9 and a death in women aged 35 years or a lethality of 3.6

Fetal prognosis

- **Apgar score:** Newborn teen mothers had an Apgar score > 7/10 at 69.23% in the first minute of life and 90.95% in the fifth minute of life and those from late pregnancies (age years) 69.34% in the first minute and 87.59% in the fifth minute of life (Table 4).

Discussion

Frequency

Our birth rate among women of extreme ages (24%) is close to that of KAMEL BEN SALEM et al., [10] in Tunisia which reported 22.5%.

Socio-demographic characteristics

Maternal age is a determining factor in fetal morbidity and mortality [2,11]. All authors agree that pregnancies at the extreme ages of reproductive life (20 years; ≥ 35 years) expose women to complications that are sometimes very serious (pre-eclampsia, eclampsia, dystocia, diabetes, postpartum hemorrhage, etc..) [12] and sometimes unfavourable results on the outcome of pregnancy (low birth weight newborns, stillbirths, prematurity...) [13,14]. Compared to the socio-professional category, the majority of women who gave birth under the age of 20 were students (39.82%), while those aged 35 and over were mostly women with a liberal profession, 45.26%; the observed differences were statistically significant ($p=0.000$).

Mode Childbirth	< 20 years		35 years		Total		P
	workforce	%	workforce	%	Workforce	%	
Low Channel	268	60.64	203	74.08	471	65.78	0.0000
Caesarean section	174	39.36	71	25.92	245	34.22	

Table 2: Mode of delivery.

Maternal complication	Age group				Total		P
	< 20 years		≥ 35 years				
	Workforce	Percentage	Workforce	Percentage	Workforce	Percentage	
Dystocia	58	13.12	7	2.55	65	9.08	0.0000
Eclampsia	8	1.80	2	0.73	10	1.40	
Uterine rupture	5	1.15	8	2.92	13	1.82	
Post partum hemorrhage	16	3.16	19	6.93	35	4.88	
Infection of Post partum	11	2.48	6	2.19	17	2.37	

Table 3: Distribution of the two (2) populations according to the risk of maternal complications.

Characteristics of newborns	Age group				Total		P
	< 20 years		35 years				
	Workforce	Percentage	Workforce	Percentage	Workforce	Percentage	
Profile of the newborn							0.8 0.0000
Premature	28	6.20	14	5	42	57.37	
Forward	410	90.7	256	91.43	666	90.98	
Post term	14	3.10	10	3.57	24	3.27	
Weight of the newborn							
< 2500 g	109	24.12	49	17.50	158	21.58	
2500 -3999g	327	72.34	200	71.43	527	71.99	
4000g	16	3.54	31	11.07	47	6.43	
Perinatal mortality							
Stillbirth							
Yes	32	7.08	22	7.86	54	7.38	0.7
No	420	92.92	258	92.14	678	92.62	
Early neonatal mortality							0.0000
Yes	9	1.99	7	2.50	16	2.19	
No	443	98.01	273	97.50	716	97.81	

Table 4: Characteristics of newborns.

With regard to marital status, both adolescent girls and those who gave birth 35 years or older were mostly married, or 89.82% versus 100% without significant differences. This could be linked to socio-cultural reasons within our country which practices 95% Muslim religion strongly condemning the occurrence of a pregnancy outside marriage. With regard to the level of education, in both populations (<20 years; 35 years), the majority of women were out of school or 42.77% versus 54.02%; this result could be explained by the enrolment rate of the Guinean general population, which has 74% illiteracy, of which 85.3% are female [15]: this fact is linked, on the one hand, to the reluctance of parents who will be abandoned with housework and, on the other, to the fear of abandonment of traditional customs and customs.

As for parity, adolescent girls were mostly primitive (82.13%) and older parturients were mostly multipares (66.66%) with statistically significant differences. This result is comparable to that of Kamel Ben Salem et al., [10] in Tunisia reporting 99.5% primiparity among adolescent girls and the almost exclusivity of multiparity in the group of women 35 years and older. With regard to the inter-reproductive interval, it was short in 15.38% of adolescent girls compared with 7.66% (< 6 months) of elderly parturients; this result is related to that of Kamel Ben Salem et al., [10] (inter-reproductive interval runs in 7.9% of women aged 19 years or younger and 17.9% of women aged 35 years or older. In contrast, Zhu BP et al., [16] in the USA reported in its series that the reproductive interval was short in 83.60% of women aged 19 and under and 56.9% of those aged 35 and over. Prenatal follow-up is an effective preventive activity to improve the outcome of pregnancy [17], especially at risk.

Our work has shown that prenatal follow-up was followed, as recommended by the WHO in the context of refocused NHC (at least 4 NHC) per pregnancy in both populations is 84.84% versus 89.05% with no significant difference (p=0.2). With regard to the location of prenatal follow-up, the majority of women in the two (2) populations had made prenatal visits to a health center or 53.62% versus 33.94% with a significant difference p=0.0000. This could be explained by the

fact that the health center is a basic (primary level) peripheral health structure closer to the populations.

Characteristics of childbirth

With regard to the mode of delivery, the low pathway was the most common mode in the two (2) populations: 63.34% versus 74.08%. However, the rate of C-section was higher among adolescent girls compared to older parturient at 39.36% versus 25.92%. These figures are consistent with those reported in the literature. Several authors have found that although caesarean section is not an age-dependent risk alone, it increases its rate [18] especially when advanced age is associated with primiparity [19]. Studies of women 35 years of age and older have reported that the risk of C-section increases when the woman is primitive and 35 years of age, or when she is multiple and 40 years of age and older [20].

Prognosis

Maternal prognosis: Analysis of this endpoint shows that the two (2) populations are all roughly similar risk groups for maternal morbidity and mortality. This in table 3 shows that the risk of certain maternal complications occurring is increased in one group compared to the other, for dystocia and eclampsia in adolescent girls and uterine rupture and postpartum hemorrhage in women 35 years of age or older. The higher risk of uterine rupture and postpartum hemorrhage in older parturients could be explained by the multiparity (flaccid uterus) that would be seen in 84% of this female layer in Africa [3].

Pronostic fœtal: l' accouchement était à terme dans 91.72% des cas chez les femmes d'âge extrême avec 90.7% chez les adolescentes versus 91.43% chez les parturientes âgées ; la prématurité n'avait été observée que chez 5.78% des nouveaux nés des femmes aux âges extrêmes sans différence significative entre les deux (2) groupes p=0.8. Finding shared by Kamel Ben Salem et al., [10] in Tunisia (5.44%). Low birth weight and macrosomy accounted for 10.10% and 6.47% of mothers of extreme ages, respectively.

These rates were significantly different in the two (2) groups: low birth weight was higher among adolescent girls (13.05% versus 5.36%); the opposite is true for fetal macrosomia, which remains significantly higher in older women with 11.07% versus 3.54%. This high risk of low birth weight in young women may be due to poor nutrition, prenatal follow-up and primiparity [21]. The overall stillbirth rate was 46.4 for women of extreme ages with 48.6 for adolescent girls and 42.8 for women aged 35 and over. In addition to the effect of age [13], some authors [22] involved the short inter-reproductive interval in the occurrence of stillbirth. Our overall stillbirth rate (74.7) is significantly higher than the overall birth rate reported in the literature [3]. According to the literature, the etiology of stillbirth remains unclear in 12 - 50% of cases [23]. However, poor socio-economic status, opportunities for nutritional anaemia, inadequate prenatal follow-up, parasitic and bacterial infestations are common in developing countries and may be co-factors in stillbirth [24]. The overall early neonatal mortality rate was 22, for women of extreme ages.

Our figures are much higher than those observed globally in some developed countries such as the USA (3%) [25], although our rate is to be considered with some reservation, given that the delivery of babies seldom after 24 hours in our maternity wards, there is no room, and newborns at risk are transferred to neonatal care. For example, our overall perinatal mortality rate was 96.64 in women of extreme ages. In addition to age, the literature speaks of other maternal characteristics (short inter-reproductive interval and poorly monitored pregnancies) that are involved in the significant increase in perinatal mortality rate.

Women of extreme ages (adolescents and women aged 35 and over) have an absolutely identical rate of stillbirth; other risks are comparable in the two (2) age groups, some are significantly high in one group compared to the other, such as low birth weight in adolescent girls and macrosomy in older parturient. Common prenatal monitoring units could be considered for these two (2) population categories with a particular emphasis on specific aspects of each group.

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