



OUTCOMES OF PREGNANCY AND CHILDBIRTH AMONG PATIENTS AGED 35 AND OLDER AT ABDOUL AZIZ SY DABAKH HOSPITAL IN TIVAOUNE (SENEGAL)

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ABSTRACT

Introduction: The trend toward later childbearing is a defining characteristic of contemporary societies. The pregnancy rate among women aged 35 and older continues to rise, while the age range of 20 to 34 remains considered optimal for childbearing. Several factors explain this trend, including improvements in assisted reproductive technologies, changes in career paths, and sociocultural shifts. **Objective:** To study the prognosis of pregnancy and childbirth among patients aged 35 and older at Abdoul Aziz Sy Dabakh Hospital. **Methodology:** This was a retrospective, descriptive, and analytical cohort study conducted from January 1 to December 31, 2020. **Results:** Of the 2,815 patients enrolled, the proportion of deliveries among women aged 35 years or older was 17.44%.

Patients aged 35 or older had:

- an increased risk of gestational diabetes (RR = 1.84; CI [1.31–2.59]);
- an increased risk of gestational hypertension (RR = 1.78; CI [1.38–2.27]);
- a reduced risk of episiotomy (RR = 0.29; CI [0.18–0.47]).

Fetuses born to mothers aged 35 or older had:

- an increased risk of macrosomia (RR = 2.34; CI [1.68–3.26]);
- a reduced risk of low birth weight (RR = 0.63; CI [0.50–0.80]);
- a reduced risk of acute fetal distress (RR = 0.65; CI [0.46–0.93]);
- a reduced risk of an Apgar score < 7 at 1 minute (RR = 0.34; CI [0.12–0.94]).

Conclusion: This study highlights the existence of specific maternal and fetal risks associated with pregnancy at age 35 and older, underscoring the need for appropriate prenatal care in this age group.

KEYWORDS

Pregnancy after age 35; maternal complications; fetal complications.

INTRODUCTION

Today's world is characterized, on the one hand, by a rise in the age at which people marry and, on the other hand, by the increasingly widespread use of contraception. These two factors, combined with advances in reproductive health, mean that the number of women without children at an advanced age continues to rise [1,2]. And this is despite the fact that the 20–34 age range is the optimal window for childbearing[3].

Beyond this age, that is, starting at age 35, we speak of advanced age in obstetrics. Thus, in 1958, the International Federation of Gynecology and Obstetrics defined an older primipara as a woman aged 35 or older giving birth for the first time [4]. Indeed, at this age, pregnancy and childbirth carry greater risks[5,6].

To our knowledge, no study on the prognosis of pregnancy and childbirth in women aged 35 and older has been conducted in the Senegalese context. To address this gap, we initiated this study with the objectives of examining the risks associated with pregnancy and the maternal-fetal prognosis during childbirth among women aged 35 and older in the Obstetrics and Gynecology Department of Tivaouane Hospital between January 1 January 2020 and December 31, 2020.

METHODOLOGY

Study Type and Duration

This is a retrospective descriptive and analytical cohort study conducted from January¹ 2020, to December 31, 2020.

Study Population

The study population consisted of all women who gave birth at the Abdoul Aziz SY DABAKH Hospital in Tivaouane during the period from January¹ 2020 to December 31, 2020.

The inclusion criteria were having given birth at the Abdoul Aziz SY DABAKH Hospital in Tivaouane during the study period. Exclusion criteria were a lost or unusable medical record.

Data Collection

➤ Description

The collected data were entered into FileMaker Pro Advanced using a pre-designed form.

➤ Data Collected

The data collected included:

- sociodemographic data: age, gestational age, year of admission, and mode of admission;
- data related to maternal prognosis:
- during pregnancy: medical conditions related to pregnancy (gestational diabetes and hypertension); obstetric conditions

- related to pregnancy (placenta previa, retroplacental hematoma, and premature rupture of membranes).
- during delivery: type of presentation (vertex vs. others), mode of delivery (vaginal or cesarean section), mode of labor induction (spontaneous vs. artificial), obstructed labor and prolonged labor; episiotomy; laceration;
- data related to fetal prognosis: preterm birth, postterm pregnancy, polyhydramnios, oligohydramnios, macrosomia, low birth weight, fetal death *in utero*, acute fetal distress, Apgar score, neonatal death.

DATA ANALYSIS

The data were first exported to Microsoft Excel and then transferred for analysis to the software programs Epi Info 7.2 and R 4.3.3.

Using univariate analysis, we described the qualitative variables using frequency tables and polygons. Quantitative variables were described using measures of central tendency and dispersion, as well as *box plots*.

Bivariate analysis allowed us to investigate associations between variables while using appropriate statistical tests based on their conditions of applicability. The alpha error risk was set at 5% and the confidence interval at 95%.

RESULTS

Our study population consisted of 2,815 patients. Just over 6 out of 10 patients (64.04%) had given birth vaginally.

The mean age of the patients was 27.2 years with a standard deviation of 6.71 years. The age range was 14 to 48 years, with a median of 26 years.

The frequency of deliveries among patients aged 35 and older was 17.44% (491 patients).

Nulliparous patients were in the majority at 33.78%.

The number of admitted patients varied by month, peaking in September at 11.19% (315 patients).

Patients admitted via transfer constituted the majority, at 62.66%.

Patients aged 35 or older were 1.84 times (CI=[1.31–2.59]) more likely to have gestational diabetes and 1.78 times (CI= [1.38–2.27]) than patients younger than 35 years of age.

The proportion of placenta previa was 2.03% among patients aged 35 years or older, compared with 1.63% among patients younger than 35 years.

This difference was not statistically significant.

The proportion of retroplacental hematoma was 5.09% among patients aged 35 years or older, compared to 4.17% among patients younger than 35 years.

This difference was not statistically significant.

The proportion of premature rupture of membranes (PROM) was 13.03% among patients aged 35 years or older, compared to 11.87% among patients younger than 35 years.

This difference was not statistically significant.

Patients aged 35 years or older had a 3.44-fold (CI= [2.12–5.55]) lower risk of undergoing an episiotomy compared to patients under 35 years of age.

Regarding artificial induction of labor, the difference observed between patients aged 35 years or older and those under 35 years of age was not statistically significant. The same was true for perineal tears, cesarean section, non-vertex presentation, and dystocia.

Fetuses born to patients aged 35 or older had a 2.34-fold (CI= [1.68–3.26]) higher risk of macrosomia compared to fetuses born to patients under 35 years of age.

Compared to fetuses born to patients under 35 years of age, fetuses born to patients aged 35 or older had a 1.58-fold (CI= [1.25–2.00])

lower risk of having low birth weight, 1.54 times (CI = [1.08–2.17]) lower risk of acute fetal distress, and 2.94 times (CI = [1.06–8.33]) lower risk of having an Apgar score < 7 at one minute.

The differences observed between fetuses born to patients aged 35 years or older and those born to patients younger than 35 years were not statistically significant with regard to postterm pregnancy, oligohydramnios, polyhydramnios, *intrauterine* fetal death, preterm birth, and mortality.

Table 1: Distribution of subjects by mode of delivery. N=2815

Study population	Frequencies (n)	Percentage (%)
Lower route	1803	64.04
Cesarean section	1,012	35.95
Total	2,815	100.00

The following *box plot* shows the distribution of patients by age

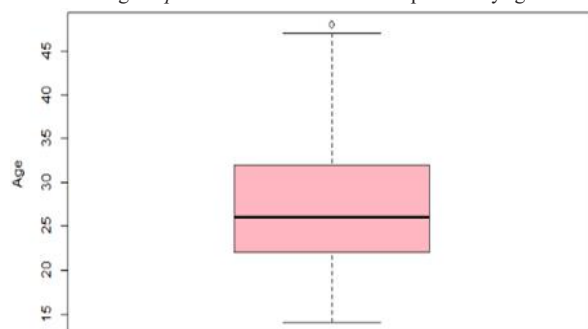


Figure 1 : Distribution of patients by age. N=2815

Table 2: Distribution of subjects by age group. N=2815

Age groups	Frequencies (n)	Percentage (%)
< 35 years	2,324	82.56
35 years and older	491	17.44
Total	2,815	100.00

Figure 2 : Distribution of subjects by gender. N=2815

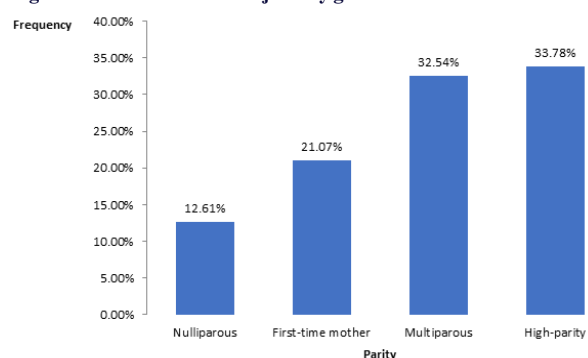


Figure 3 : Distribution of subjects by month of admission. N=2815

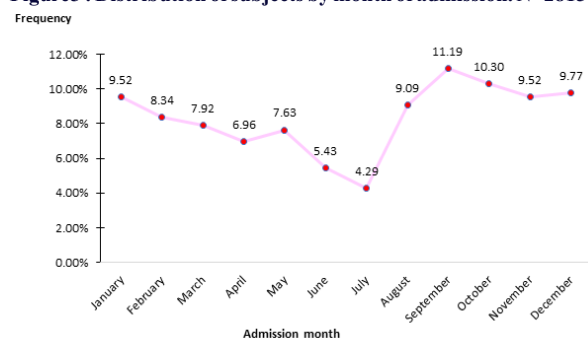


Table 3: Distribution of subjects by mode of admission. N=2815

Admission method	Frequencies (n)	Percentage (%)
Home	1051	37.33
Transfer	1,764	62.66
Total	2,815	100.00

Table 4: Risk of medical conditions during pregnancy among women aged 35 and older.

Medical conditions during pregnancy	Maternal age		RR	P
	≥ 35 years	< 35 years		
Gestational diabetes				
n/N	49/491	132/2324	1.84	< 0.001
%	9.98	5.67		
HTA				
n/N	105/491	310/2324	1.78	< 0.001
%	21.38	13.33		

RR = Relative Risk P = P-value

Table 5: Risk of obstetric complications in women aged 35 and older

Obstetric complications	Maternal age		RR	P
	≥ 35 years	< 35 years		
Placenta previa				
n/N	10/491	38/2324	-	=0.76
%	2.03	1.63		
Retroplacental hematoma				
n/N	25/491	97/2324	-	=0.35
%	5.09	4.17		
Premature rupture of membranes				
n/N	64/491	276/2324	-	=0.47
%	13.03	11.87		

RR = Relative Risk

P = P-value

Table 6: Delivery outcomes among women aged 35 and older

Outcome of delivery	Maternal age		RR	P
	≥ 35 years	< 35 years		
Breech presentation				
n/N	49/491	222/2324	.	=0.83
%	9.98	9.55		
Cesarean				
n/N	190/491	823/2324	.	=0.20
%	38.69	35.41		
Induction of labor				
n/N	32/491	115/2324	.	=0.19
%	6.51	4.95		
Obstetric dystocia or prolonged labor				
n/N	68/491	258/2324	.	=0.09
%	13.85	11.10		
Episiotomy				
n/N	18/491	271/2324	3.44	< 0.001
%	3.66	11.66		
Tear				
n/N	16/491	125/2324	.	=0.06
%	3.26	5.38		

RR = Relative Risk

P = P-value

Table 7: Fetal prognosis in women aged 35 and older.

Fetal outcome	Maternal age		RR	P
	≥ 35 years	< 35 years		
Preterm birth				
n/N	94/491	512/2324	.	=0.17
%	19.14	22.03		
Term exceeded				
n/N	41/491	159/2324	.	=0.27
%	8.35	6.84		
Low birth weight				
n/N	104/491	693/2324	1.58	< 0.001
%	21.18	29.81		
Macrosomia				
n/N	56/491	121/2324	2.34	< 0.001
%	11.40	5.20		
Polyhydramnios				
n/N	2/491	8/2324	.	= 1
%	0.40	0.34		
Oligohydramnios				
n/N	3/491	12/2324	.	=1

%	0.61	0.51		
Fetal death in utero				
n/N	10/491	85/2324	.	=0.09
%	2.03	3.66		
Acute fetal distress				
n/N	41/491	285/2324	1.54	=0.01
%	8.35	12.26		
Apgar score < 7				
n/N	4/491	55/2324	2.94	=0.04
%	0.81	2.3		
Stillbirth				
n/N	36/491	187/2324	.	=0.65
%	7.33	8.04		

RR = Relative Risk

P = P-value

DISCUSSION

Study Limitations

We conducted a retrospective descriptive and analytical study covering the period from December¹ to December 31, 2020, a duration of twelve months. This timeframe allowed us to accurately track deliveries in the Gynecology Department of Abdoul Aziz SY DABAKH Hospital in Tivaouane.

The difficulties encountered during this study were those encountered in several retrospective studies: the presence of missing data and the absence of data on important variables (frequency of abortions, ectopic pregnancies, maternal deaths, neonatal deaths, etc.).

Another limitation of our study is that it was not multicenter.

Frequency

In our study, the pregnancy rate was 17.44% among women aged 35 and older. This low pregnancy rate in this age group is likely due to a natural decline in fertility, probably related to ovulatory disorders (anovulation, dysovulation) at this stage of reproductive life. The rate we observed at the maternity ward of Tivaouane Hospital is similar to those reported in the literature.

Table XI : Proportion of pregnancies among women aged 35 and older.

Authors	Location and Year	Age group	N	Frequency in %
Diarra[7]	Mali 2006	≥ 35 years	19,186	15.09
Diarra[7]	Mali 2006	40 years or older	19,186	3.61
Ozal et al [3]	Turkey 2003	≥ 35 years	-	11.60
Cissé [8]	Benin 2000	40 years and older	25,481	1.20
Ekblad [9]	Turkey 1994	40+	-	2.10

Medical conditions during pregnancy

In our study, the risk of developing gestational diabetes was 1.84 (CI= [1.31–2.59]) for patients aged 35 years or older.

The incidence of gestational diabetes is elevated across all series [5,12,13,14,15,16,17] ; this condition affects 7% of patients aged 40–45 and 12% of those older [16] . The risk of gestational diabetes was 4.0 for Gilbert [5] , 3.9 for Jolly [16], 3.4 for Jacobsson [13] and Joseph [12] , 3.2 for Roman [17], and 2.41 for Kahveci [15] .

The risk of hypertension in patients aged 35 years and older was 1.7 in Diarra [7] and 2 in Ozalp [3] . In our study, this risk was 1.77 (CI= [1.38–2.27]) for patients aged 35 years or older

Gestational hypertension is increased in the majority of series, particularly among primiparous women [14,20,15,21,22,23]. Jacobsson [13] found a significant OR of 3.3 (CI= [3–3.5]) among women aged 40–44 years, regardless of parity.

According to Cleary-Goldman [24], the risk of gestational hypertension is not significantly increased after adjusting for several factors, including parity, body mass index, and smoking. Spellacy [11] reaches the same conclusion among patients weighing less than 67.5 kg at delivery, and Roman [17] does as well, but only for multiparous women with four or more previous births (parity > 4).

Obstetric Pregnancy Complications

In our study, we did not find an association between the occurrence of

retroplacental hematoma and placenta previa and maternal age, as shown in certain series [12,25,26,16].

We found no association between the occurrence of preterm rupture of membranes and maternal age. Konzinszky [27] and Cissé [8] also found no association between the occurrence of preterm rupture of membranes and maternal age.

Delivery Outcome

We found no association between the risk of fetal malpresentation, the risk of cesarean delivery, and the patient's age itself. However, our results do not align with those in the literature [5,28,18,17]. Indeed, many studies show that among women aged 35 or older, the mode of delivery is characterized by a very high rate of cesarean sections compared to younger women [28,20,15,25,21,26]. This discrepancy could be explained by differences in sample size.

We did not find an association between the occurrence of perineal tears and maternal age. Jacobsson [13], however, notes an increase in severe tears (OR 1.3 and 1.8 for women aged 40 and 45, respectively).

Fetal prognosis

Regarding the risk of preterm birth (GA < 37 weeks) in our study, as in several other series, the difference is not significant compared to younger mothers [12,24,33].

The increased risk of intrauterine growth restriction (IUGR) and fetal distress is not reported by many studies [12,13,24,17]. Gilbert [5] — in a high-power series — notes a significantly higher rate of “growth restriction,” particularly among primiparous women, whereas according to the raw AUDIPOG 2002–2003 data [32], this finding primarily concerns multiparous women (OR 1.47; CI [1.2–1.8]). Diarra had also documented higher rates of low birth weight among women aged 35 and older [7]. In contrast, we noted in our study that fetuses born to patients aged 35 or older had a 1.58-fold (CI = [1.25–2.00]) lower risk of low birth weight compared to fetuses born to patients under 35 years of age. Thus, we believe that maternal age may be merely a confounding factor in explaining the occurrence of low birth weight.

The risk of macrosomia in our study was 2.34 for fetuses born to patients aged 35 years or older. This result is consistent with those in the literature. Indeed, a higher rate of macrosomia or newborns with a weight above the 90th percentile has been reported by several authors [13,25,17,7].

We did not observe any statistically significant difference in the risk of *intrauterine* fetal death or neonatal mortality among fetuses born to patients aged 35 years or older. These same findings have been reported in certain publications [29,30] that include a moderate number of patients [31, 22] or that do not distinguish between perinatal and neonatal mortality [12,24]. However, this finding differs in certain publications where neonatal mortality is increased among women aged 40 and older in some older and recent series by a factor of <2 [5, 12, 25,24]; the difference does not appear to be very significant due to the low mortality rate in developed countries, and the authors conclude that the neonatal outcome is favorable for the majority of children [5,24]. Maternal pathology plays a role in these adverse outcomes [13], but age alone is, according to Joseph [12], a risk factor for perinatal mortality and morbidity (excluding malformations).

In studies conducted in Africa, the proportion of stillbirths was 5.5% in Cissé [8] and 14.7% in Diarra [7].

The rate of post-term pregnancies is identical regardless of the patients' age [5,18].

However, our study did not find a statistically significant association between advanced maternal age and post-term pregnancy.

CONCLUSION

Pregnancy in women aged 35 and older requires enhanced obstetric monitoring to reduce maternal and fetal risks.

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