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Research Article

Neonatal Morbidity and Mortality of Retro Placental Hematoma among New-Borns at the Mother-Child University Hospital Centre Jeanne Ebori Foundation

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Received: July 28, 2021; **Published:** August 27, 2021

Abstract

Objective: Describe the epidemiological, clinical and prognostic aspects of newborns from mothers managed for placental retro hematoma.

Patients and Methods: We conducted a cross-sectional, descriptive and analytical study over 24 months in the neonatal medicine department of the CHUMEFJE. All neonates, born against a background of placental retro hematoma were included. The parameters studied were, frequency, clinical picture, management and complications.

Results: 137 newborns were included, a prevalence of 1.3%. The mean gestational age was 34.9 SA; the sex ratio was 1.2. The average age of mothers was 29.1 ± 6 years. In 55.7% of cases, at least 4 prenatal contacts were made. Gravid arterial hypertension was observed in 31.3% of the cases, among them, 80.5% had a severe form. SHER grade III retro placental hematoma was observed in 49.6% of cases. Caesarean section was the voice of delivery in 97.8% of cases. Fetal death in utero was observed in 47.4% of cases. Of the 72 live newborns, 59.7% were hospitalized in neonatology. The top 3 complications observed were metabolic (81.4%), respiratory (62.8%) and hematological (46.5%). Perinatal mortality was 56.2%. Factors associated with this mortality were GRADES II and III of SHER and gestational age < 37SA ($p < 0.05$).

Conclusion: Retro-placental hematoma remains a serious pathology associated with high neonatal mortality.

Keywords: *PRH; Newborn; Mortality; Morbidity; Gabon*

Introduction

Placental retro hematoma (PRH) is described as premature detachment of the normally inserted placenta (PDNIP) while the fetus is in utero [1]. PRH engages the life-threatening of the mother and the fetus by altering mother-fetal exchanges leading to fetal suffering and a risk of maternal death [2-4]. Fetal complications (intrauterine growth retardation, induced prematurity and fetal death in utero (FDIU)) and maternal complications (hemodynamic disorders, hemostasis disorders and maternal death) that PRH causes makes it a serious, unpredictable pathology and therefore constitutes an extreme obstetric emergency, it is the second cause of maternal mortality after the hemorrhages of the delivery [5-7]. The management of PRH is multidisciplinary. Its frequency varies from country to country and from

one health structure to another. It would complicate between 0.25% and 1% of births in industrialized countries [5,8,9] and between 1% and 9% in developing countries [2,4,10,11].

It is in order to contribute to the improvement of the management of PRH and also in view of the lack of statistical data on this pathology in our country, that we conducted this study, with the objective of describing the epidemiological, clinical and prognostic aspects of newborns, from mothers who have presented an PRH at the CHUMEFJE.

Patients and Methods

We conducted a prospective, descriptive and analytical study over a period of 24 months (January 2019 to December 2020) in the neonatal medicine department of the CHUMEFJE in Libreville. During this period, all newborns (gestational age (GA) ≥ 22 weeks of amenorrhea (AS)), regardless of the status (dead or alive), born against a background of PRH, were included. The parameters studied in the newborn were: GA, anthropometric parameters, Apgar score, fetal and neonatal prognosis, ongoing complications hospitalization. In the mother we studied: age, socio-economic data, obstetric history.

The severity of the clinical picture was evaluated according to the Sher classification [12] which distinguishes 3 grades of distinct severity:

- Grade I: Apparently isolated metrorrhagia;
- Grade II: More complete symptomatology and living child;
- Grade III: Complete symptomatology with fetal death (3A: without bleeding disorders; 3B: with coagulation disorders).

The data were collected from patients' medical records, delivery room and operating theatre records. The data was entered on Excel 2013. Data analysis was performed using SPSS 19.1 software. We calculated quantitative and qualitative variables. The khi2 test was used with a significance threshold (p) of less than 0.05.

Results

Prevalence

During this study period, we recorded 10 628 deliveries, including 137 newborns (six pairs of twins), born in a context of PRH, for a hospital prevalence of 1.3%.

Characteristics of mothers

Table 1 illustrates the characteristics of the mothers. The average maternal age was 29.1 ± 6 years (extremes 14 - 42 years). Mean number of pregnancies was 4.1 ± 2.4 (extremes 1 - 11). The average parity was 2.1 ± 1.8 deliveries (extremes 0 - 9). The average number of prenatal contacts was 3.6 ± 1.8 (extremes 0 - 8), 55.7% (n = 73) of pregnancies had at least 4 prenatal contacts. The proportion of mothers which had high blood pressure was 31.3% (n = 41/131), of which 80.5% (n = 33/41) had severe pre-eclampsia or eclampsia.

Circumstances of discovery and classification of PRH

The circumstances of discovery were the presence of metrorrhagia in 69.5% (n = 91/131), arterial hypertension in 26.7% (35/131) and pelvic algies in 8.4% (11/131).

According to Sher's classification, grade III PRH was observed with a proportion of 49.6% (Table 1).

	Effective (n)	%
Age		
< 20	8	6,1
20 - 35	116	88,5
≥ 35	7	5,4
Profession		
Learner	30	23,0
employed	51	39,0
Jobless	50	38,0
Matrimonial status		
Single	47	35,9
Cohabitation	62	47,3
Married	22	16,8
Study level		
Primary	14	10,7
Secondary	90	68,7
University	27	20,6
Parity		
Primipares	28	21,4
paucipares	80	61,0
Multipares	23	17,6
Origin		
Home	83	63,3
Health structure	48	36,6
Follow-up location		
SMI	76	58,0
Private structure	12	9,2
UHC	43	33,8
Sher classification		
Grade I	9	6,9
Grade II	57	43,5
Grade III	65	49,6

Table 1: *Characteristics of mothers (N = 131).*

Data related to childbirth

Delivery was by caesarean section in 97.8% of cases. And the indication for caesarean section was placental retro hematoma (67.4%), pre-eclampsia (25.6%), fetal suffering (4.7%) and macrosomia (2.3%). Amniotic fluid was bloody in 57.7% of cases.

Characteristics of newborns

Table 2 shows the characteristics of the newborns. The mean gestational age was 34.9 SA + 2 days ± 3.8 SA (extreme 23 SA - 41 SA). The proportion of preterm infants was 58.4%, of which 57.5% were classified as medium preterm infants. The average weight was 2 341.9g ± 812.3g (extremes 560 - 4 430g). The average height was 46.7 cm ± 4.5 cm (extremes 35 - 52 cm). The mean cranial perimeter was 31.1 cm ± 3.4 cm (extremes 16 - 36 cm). Newborns were male in 55.5%, a sex ratio of 1.2.

	Effective (n)	%
Gestational age (SA)		
< 37	80	58,4
> 37	57	41,6
Prematurity (SA)		
< 28	5	6,3
28 - 32 SA+6J	29	36,2
≥ 33	46	57,5
Mass (grams)		
< 2500	77	56,2
2500 - 4000	59	43,1
> 4000	1	0,7
Route of delivery		
Low track	3	2,2
caesarean section	134	97,8
Amniotic liquid color		
Clair	55	40,1
Tinted	3	2,2
Bloody	79	57,7
Birth status		
Alive	72	52,6
deceased	65	47,4
Apgar M_1		
< 3	26	36,1
3 - 6	15	20,8
≥ 7	31	43,1
Apgar M_5		
< 3	9	12,5
3 - 6	19	26,4
≥ 7	44	61,1

Table 2: *Characteristics of the newborn (N = 137).*

At birth, among live newborns (n = 72), 36.1% had an Apgar less than 3 at the 1st minute. In the 5th minute, 38.9% had an Apgar less than 7. At the end of resuscitation, 40.3% (n = 29/72) of newborns remained stable and transferred after childbirth to their mothers, of

whom 34.5% were born of pregnancy with grade I PRH and 65.5 grade II. Hospitalization in neonatology was necessary in 59.7% (n = 43/72) of cases. Perinatal asphyxia was the 1st reason for hospitalization (76.7%) followed by prematurity (18.6%) and respiratory distress (4.7%).

Evolution during hospitalization

Morbidity-related data

The complications observed during hospitalization are shown in table 3. These complications were metabolic (81.4%), respiratory (62.8%), hematological (46.5%), infectious (30.2%) and neurological (25.6%). All hospitalized newborns had at least 2 complications. In 32.6% (n = 14/43) of cases, a transfusion of blood derivatives was performed. The average length of hospitalization was 9.9 days (extremes 2 - 40).

	Effective (n)	%
Metabolic complications n = 35 (81,4%)		
Hypo glycaemia	21	60,1
Hepatic cytolysis	6	17,2
Hypocalcemia	5	14,3
Jaundice	1	2,8
Renal failure	1	2,8
Cytosteatoncrosis	1	2,8
Respiratory complications n = 27 (62,8%)		
Transient distress	22	81,5
MMH	5	18,5
Hematologic complications n = 20 (46,5%)		
Anemia	10	50,0
Thrombocytopenia	6	30,0
CIVD	4	20,0
Infectious complications		
Yes	13	30,2
No	30	69,8
Neurologic complications n = 11 (25,6%)		
Encephalopathy Sarnat II	9	81,8
Sarnat III encephalopathy	1	9,1
Periventricular hemorrhage	1	9,1
Blood transfusion n = 14 (32,6%)		
Globular pellet	7	50,0
Platelet concentrate	3	21,4
Fresh plasma filled	4	28,6

Table 3: *Different complications during hospitalization.*

Mortality-related data

At birth, 47.5% of the study population (n = 65/137) were IUGFs. Of the hospitalized newborns (n = 43), 12 died or 27.9%. Overall, the perinatal death rate for PRH was 56.2% (n = 77/137). Factors associated with perinatal mortality were Sher grades II and III and gestational age less than 37 SA ($p < 0.05$) (Table 4).

Parameters n		Alive		Deceased		p
		%	n	%		
Gestational age	< 37	28	46,7	52	67,5	0,024
	> 37	32	53,3	25	32,5	
Sher Grade	Grade I	7	11,7	2	2,6	0,000
	Grade II	53	88,3	8	10,4	
	Grade III	0	0	67	87,0	
Sex	M	37	61,7	39	50,6	0,198
	F	23	38,3	38	49,4	

Table 4: *Mortality factors.*

Discussion

Prevalence

The prevalence of PRH during the study is 1.3%, this prevalence is comparable to that found in Ivory Coast (1.55%) [13], Mauritania (1.39%) [14] and Senegal 1.97% [2]. Other African series find lower prevalence; this is the case in Madagascar (0.59%) [6]. Our prevalence is lower than that found in Gabon in 1989 (2.44%) in a study of maternal and fetal complications of hypertension during pregnancy [15]. Higher prevalence is found in Africa, notably in Nigeria (3.6%) [11] and Senegal (6%) [4]. These prevalences remain low despite the variability of the values between countries. This difference can be explained by the fact that it is most often a question of hospital prevalence, and therefore influenced by the fact that reference centers are the main points of convergence of serious pathologies, including PRH. However, Mezane S., *et al*. point out that it is very difficult to have an accurate assessment of the frequency of PRH because the definition of the authors varies according to the mode of diagnosis [7].

Characteristics of mothers

The PRH would mainly complicate the pregnancies of women over the age of 25 [4,6]. This justifies that the average ages of mothers and the age group most affected are almost identical in most African and Western studies [2,4,5,6,14]. However, adolescent girls occupy a significant place in our study (6.1%), as well as in those of Mezane S., *et al*. (8.5%) [7] and Thiam O., *et al*. (6%) [4].

In our series, paucipares and primiparous are the most observed, respectively 61% and 21.4% of cases, as well as that of Granito-Martinez in France (40.39% and 32.69%) [5]. Mezane S., *et al*. find a higher frequency in primiparous (26.4%) [7]. Other studies show that primiparous people are the most affected by PRH, particularly in Madagascar (47.9%) [6] and in Abidjan 54.2% [13]. In the studies of Thiam O., *et al*. [4], Geueneuc., *et al*. [16] and Thieba., *et al*. [17], multiparous are the most observed at frequency of 63.4%, 82% and 56.5% respectively. Similarly, Furukawa S., *et al*. find that the incidence of primiparous is not significant [8]. And in the study by Abdelkader F., *et al*. multiple pregnancies represent 55.7% [14], however, we note that PRH appears as a gravid pathology that spares no parity. We therefore agree with Berkane's assertion that PRH is an unpredictable pathology that can affect both the primiparous and the multiparous [18].

In our study, 31.3% of mothers had hypertension at admission and 80.5% were complicated by pre-eclampsia and/or eclampsia. Biaye., *et al*. also found a significant proportion of hypertensive pathology (29%) [2], as well as Abdelkader F., *et al*. (47.42%) [14]. In the study by Rakotozanany B., *et al*. high blood pressure was observed in nearly 19% of cases [6] and Mezane S., *et al*. found 20% toxemia and 17.1% pre-pregnancy high blood pressure [7]. Thiam O., *et al*. report 37% of patients with hypertension at entry and 12% with a history of pre-eclampsia [4]. Thieba., *et al*. note in his study that 48.49% of patients have an altered vascular terrain, represented by pre-eclampsia (35.31%), isolated hypertension (10.64%) and eclampsia (2.54%) [17].

On the other hand, Granito-Martinez does not find gravid hypertension or eclampsia but a small proportion of 9.62% of patients with pre-eclampsia [5]. High blood pressure (and its complications pre-eclampsia and eclampsia) is a factor in the occurrence of PRH, same as the woman's advanced age, multiparity, premature rupture of membranes, a history of PRH, poorly followed pregnancy, black ethnicity, certain uterine and fetal mal formative pathologies and thrombophilia [1,5,6,14].

Characteristic of newborns

The average GA was 34.9 SA + 2 days with a premature rate of 58.4%. This result corroborates those of other studies that find an average GA of 34.17 ± 4.5 SA with 41.6% of cases of prematurity in Mauritania [14], of 36 SA and a prematurity rate of 95% in Senegal [4] and 36 SA +3 days and a prematurity rate of 43% in another study in Senegal [2]. Average GAs lower than ours were observed in France, 32 SA + 2.5 days in Grenoble [5], 33 SA + 6 days and prematurity rate of 63.8% was in Strasbourg [19]. In Morocco the average GA observed by Mezane was 31.1 SA +/- 5.6 and 29.1 SA +/- 7.85 [7]. This GA around 30 SA is justified by the fact that PRH would mainly complicate the second half of pregnancy and is one of the main sources of prematurity, especially induced prematurity as is the case in our study [5]. Hypotrophy accounts for 56.2% in our study. This prevalence is comparable to that found in Senegal (60%) [4]. In Madagascar 43.7% of newborns had a weight between 1500-2500 grams [6]. In Mauritania, birth weight was < 1500g in 46.39% of cases [14] and in France, the average weight was 1900.40g ± 1034.08g [5]. This hypotrophy can be explained by the impact of pregnancy hypertension but also by the induced prematurity.

At birth, 37% of newborns presented perinatal anoxia which is comparable to the rate found in Grenoble (40%) [5] and lower than that found in Madagascar (75%) [6]. This high rate of perinatal asphyxia is easily justified because PRH causes an alteration of uterine-placental exchanges.

Hospitalization was required in 59.7% of cases in live newborns. The complications observed during hospitalization were metabolic, respiratory, hematological, infectious and neurological. All these complications have their origins in the restriction of nutritional intakes and the alteration of fetal oxygenation caused by PRH. The perinatal mortality rate in our study is 56.2%, remains high for all series in the literature especially in developing countries, as observed in Senegal (60%) [4], Ouagadougou (85.9%) [20], Niger (71.3%) [11] and Strasbourg (19%) [19].

In 84.4% of cases, it was an IUGF in our work. This rate of IUGF is also very high in all African series, particularly in Senegal (76.1%) [2], Madagascar (91.7%) [6], Mauritania (74.22%) [14] and Ivory Coast (64% [13].

And lower in developed countries (9 -13.4%) [5,19]. This high rate of IUGD in developing countries can be explained by the delay in diagnosis and management due to the high percentage of pregnancies not or poorly followed, and also by the lack of the technical platform on the other hand.

Factors significantly associated with perinatal mortality were Sher grades II and III and gestational age < 37SA ($p < 0.05$). The complications of prematurity, the severity of asphyxia associated with Sher's custody easily justifies these associated factors.

Conclusion

Retro placental hematoma is a major medico-obstetrical emergency that generates a very high rate of fetal and neonatal morbidity and mortality in our context. Despite a better knowledge of risk factors, it is essential to improve the rate of pregnancy follow-up and the quality of care through the training of care staff and the education of parturients.

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