

Research Article

Immediate Postpartum Hemorrhage: Sociodemographic Characteristics, Management and Maternal Prognosis at the Maternity Ward of the Ignace Deen National Hospital

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Abstract

Objectives: Determine the frequency of immediate postpartum hemorrhage, describe the sociodemographic characteristics of patients, identify the etiological factors, describe the management and assess the prognosis of patients presenting with immediate postpartum hemorrhage in the maternity ward of the hospital. Ignace Deen National Hospital (Conakry University Hospital).

Methodology: This was a prospective, descriptive and analytical case-control study carried out at the maternity ward of the Ignace Deen National Hospital, over a period from September 1, 2020 to August 31, 2021, involving all women who gave birth in the department or who were evacuated for the management of an immediate postpartum hemorrhage. Data analysis was performed using SPSS version 21.0 software. Pearson's Chi2 test was used with $P < 0.05$.

Results: The frequency of immediate postpartum hemorrhage was 3.12% with an average patient age of 26.37 ± 6.13 years. The evacuees represented (68.89%) versus (22.22%) with P value = 0.001. The primiparous were the most affected (33.88%) versus (43.33%).

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In both groups vaginal delivery was identical (63.33%). Uterine atony was the most common cause (66.67%). The management was medical with oxytocin (100%) and misoprostol (59.44%) and obstetrical with 83.33% uterine revision. Uterine compressive suture type B-lynch (2.22%) and hemostasis hysterectomy (1.11%) were the surgical procedures performed. Maternal lethality was 8.89%.

Conclusion: Immediate postpartum hemorrhage is the leading cause of maternal morbidity and mortality. Particular emphasis should be placed on the availability at all levels of the health pyramid of competent personnel in emergency obstetric and neonatal care capable of early diagnosis and implementing rapid and adequate care.

Keywords: Ignace deen; Immediate postpartum hemorrhage; Management; Prognosis; Sociodemographic aspect

Introduction

Immediate postpartum hemorrhage is defined as the occurrence of blood loss of more than 500 ml during vaginal delivery and more than 1000 ml for a caesarean section in the first 24 hours following childbirth [1,2]. It is a formidable complication that affects 5 to 10% of deliveries [3]. It can be the cause of admission to intensive care, immunological and infectious risks related to blood transfusion, ischemic necrosis of the pituitary gland, and hysterectomy for hemostasis responsible for permanent sterility. It is the leading cause of maternal death worldwide [3]. Most deaths occur within four (4) hours of delivery, hence the importance of rigorous surveillance in the immediate postpartum period [4]. The objectives of this study were to calculate the frequency, to describe the socio-demographic characteristics of the patients concerned, to identify the etiological factors, to describe the care and to evaluate the maternal prognosis of the patients having presented the hemorrhage of the immediate post in the maternity ward of Ignace Deen National Hospital.

Patients and Methods

The maternity hospital of the Ignace Deen CHU national hospital in Conakry served as the setting for this study. It is a level 3 maternity unit in the health pyramid of our country. This is a prospective, descriptive and analytical case-control study on a cohort of patients who gave birth between September 1, 2020 and August 31, 2021. Were included in the study all the women giving birth in the service whatever the mode of delivery presenting a hemorrhage of the immediate postpartum and those evacuated in the service for a management of the hemorrhage of the immediate postpartum who agreed to participate in the study.

We took one case for two controls which were made up of all the patients who had given birth directly before and after the case and had not had any immediate postpartum hemorrhage. We're not included in the study, patients who refused to participate in the study and all patients who had given birth not admitted directly before and after the case and who had not had an immediate postpartum hemorrhage. The variables studied were the sociodemographic characteristics, the

course of the pregnancy, the conditions of admission, the course of childbirth, the time to diagnosis, the etiologies, the treatment instituted and the maternal prognosis. These data, collected from admission registers, medical records, delivery registers and the operating room, were entered and analyzed using SPSS software in version 21.0. The statistical test used was that of Pearson's chi-square, with a significance level of less than 5%. The research protocol was approved by the national ethics committee with informed consent.

Results

Frequency: During the study period we counted 180 cases of immediate postpartum hemorrhage out of a total of 5762 deliveries, a frequency of 3.12%.

Sociodemographic characteristics: The sociodemographic profile of the patients was that of a woman whose age is between 16-25 years (51.11% versus 49.72%), married (90.55% versus 91.66%), uneducated (49.44% versus 47.22%) and exercising a liberal profession (41.11% versus 41.94%) (Table 1).

Characteristics of patients	Cases = 180		Witnesses = 360		P-value
	Workforce	%	Workforce	%	
Age					
16-25	92	51.11	179	49.72	0.38
26-35	70	38.88	141	39.16	
≥ 36	18	10.00	40	11.11	
Min : 16	Average : 26.37±6.13		Max : 43		
Profession					
Housewife	49	27.22	90	25.00	
Liberal	74	41.11	151	41.94	0.47
Pupil/Student	28	15.55	62	17.22	
Official	29	16.11	57	15.83	
Marital Status					
Single	17	9.44	30	8.33	
Married	163	90.55	330	91.66	0.33
Level of Education					
No schooling	89	49.44	170	47.22	0.31
Primary	16	8.89	29	8.06	
Secondary	38	21.11	67	18.61	
Superior	37	20.56	94	26.11	
Parity					
Primiparous	61	33.88	156	43.33	0.00
Pauciparous	58	32.22	100	27.78	
Multiparous	36	20.00	68	18.89	
Grand multiparous	25	13.89	36	10.00	
Mode of admission					
Coming of herself	56	31.11	280	77.78	
Evacuated	124	68.89	80	22.22	0.00

Table 1: Characteristic of patients.

Reasons for admission: Labor pains (85.56%), immediate postpartum hemorrhages (36.67%) and arterial hypertension (17.22%) were the main reasons for consultation. Twelve (12) patients (6.67%) were admitted for excessive fundal height and three (3) for default to engage (1.67%).

Prenatal follow-up: More than half of the patients (51.11%) were followed by midwives and in the majority of cases (71.67%) they had benefited from at least 3 prenatal consultations (CPN). Most patients were followed in health centers (44.44%) and in private structures (clinics and medical offices) with a frequency of 31.13%. The majority of patients carried full-term pregnancies, i.e., 73.88% versus 86.39% with no significant difference. Those who were not at term accounted for 20.56%.

The mode of delivery: More than half of the patients had given birth vaginally in the two populations (63.33%). Instrumental extraction by suction cup was used in 5.56% of patients. Caesarean section was performed in a proportion of 31.11% in both populations. Regarding the course of labor, in our sample most of the patients (51.11% versus 58.61%) had benefited from a spontaneous induction of labor, followed by artificial induction (21.66% versus 12.22 %) and directed work (10% versus 15.28%).

Etiologies: Hemorrhage during delivery was by far the most frequent, 92.78% versus 24.44% contemporary bleeding during delivery by tearing of the soft parts. Among the causes of postpartum hemorrhage, uterine atony came first with 66.67% followed by retained placenta with 21.11% (Table 2).

Etiologies	Workforce	Percentage
Hemorrhage of deliverance		
-Uterine atony	120	66.67
-Placental retention	38	21.11
-Bleeding disorder	9	5.00
Hemorrhage contemporaneous with delivery		
Tearing of the soft parts	45	25.00

Table 2: Etiologies of immediate postpartum hemorrhage.

Diagnosis of hemorrhage: The average time to diagnosis of postpartum hemorrhage was specified in most cases. It was < 60 minutes, or 54.44% with an average of 1.57 hours and extremes of 1 hour and 4 hours (Table 3).

Time elapsed	Workforce	Percentage
<60 mins	98	54.44
1h-2h	45	25.00
2h-3h	16	8.89
3h-4h	17	9.44
Unspecified	4	2.22
Total	180	100
Min: 1h	Average: 1,57h	Max: 4h

Table 3: Time to diagnosis.

Management of postpartum hemorrhage: All patients received an oxytocin infusion (100%) as initial medical treatment. This treatment was associated with misoprostol in 107 patients, i.e. 59.44%. The administration of blood products of the globular type alone (42.22%) or associated with PFC (13.33%) was necessary in 100 patients, i.e.

55.55%. The obstetrical treatment consisted of carrying out a uterine revision alone (83.33%) or associated with a uterine massage (40.56%) and the placement of a sandbag in 15%. The use of mechanical means was necessary in 25 patients (13.88%). It involved the placement of an intrauterine tamponade. Surgical treatment was necessary in 51 patients, i.e. 28.33%. Among them, 45 patients benefited from a suture of the soft parts (25%) and four (4) benefited from a compressive uterine suture type B-lynch or 2.22% and two (2) patients benefited from hemostatic hysterectomy (1.11%).

Maternal prognosis: Morbidity related to immediate postpartum hemorrhage involved 164 patients (91.11%) and the main complications that were recorded were anemia (37.22%), state of shock due to intravascular coagulopathy disease (DIC) (47.22%) and renal failure (6.66%) (Table 4). We recorded 16 cases of maternal death, i.e. a lethality of 8.89%. Coagulation disorders secondary to uterine atony were the major cause of death with 12 cases (75%).

Morbidity maternal	Workforce	Percentage
Anemia	67	37.22
State of shock	71	39.44
Disseminated intravascular coagulopathy	14	7.78
Renal failure	12	6.67

Table 4: Maternal morbidity related to immediate postpartum hemorrhage.

Discussion

Frequency: Our frequency (3.12%) is higher than that of Faye Dieme [5] in Senegal and Téguété I [6] in Mali who had found 1.1% and 2.3% immediate postpartum hemorrhage but lower than that of reported by Sitty [7] in Togo and Deneux-Thauaux [3] in France with respectively 4.7% and 6.4%. In population studies, the prevalence of immediate postpartum hemorrhage is around 5% of deliveries when the measurement of blood loss is imprecise, based only on an estimate visual, and around 10% when an objective measurement method such as the collection bag under the buttocks or the weighing of the compresses is used [3]. This relatively low frequency compared to that of certain series could be explained by the absence of systematic quantification of blood loss and the insufficiencies noted in the monitoring of the immediate postpartum period, especially in the peripheral maternities, probably at the origin of a under case notification.

Sociodemographic characteristics: The average age of the patients was 26.37 years \pm 6.13 years with extremes of 16 and 43 years. The most frequent age group was that of 16-25 years (51.11% versus 49.72%). This result could be explained by the fact that this age group corresponds to the period of highest fertility. However, our study does not find a relationship between age and the occurrence of immediate postpartum hemorrhage. In Senegal Faye Dieme [5] had reported an average age of 27.5 years with a majority for the age group of 25-29 years (25.5%). Immediate postpartum hemorrhage seems to be more frequent in the underprivileged layers (housewife, woman of liberal profession). These women are less followed in CPN and therefore more exposed to unidentified risk factors.

Unschooling women were the most represented in the two (2) populations, i.e., 49.44% versus 47.22% with no significant difference. This result shows that the level of schooling does not influence the risk of immediate postpartum hemorrhage. This result could be

explained by a schooling rate of the general Guinean population which has 57% of illiteracy, of which 69% is female [8]. The delay in patient evacuation significantly influenced the maternal prognosis of patients with immediate postpartum hemorrhage with a P value of 0.00. The average parity was 2.68 with extremes of 1 and 10. Primiparity was associated with the risk of immediate postpartum hemorrhage in our series. Our result corroborates that of Faye Dieme [5] in Senegal who reported an average parity of 2 with extremes of 1 and 10, with a higher frequency in primiparous (34.3%).

Obstetric data

Regarding the number of prenatal consultations, the follow-up was not of good quality. The required number of prenatal consultations according to the WHO was only reached in a proportion of 28.33% for all patients. A well-monitored pregnancy could reduce the risk of occurrence of immediate postpartum hemorrhage. It also allows rapid treatment before any dramatic complications, in order to reduce the rate of maternal death and to provide advice on family planning [9]. With regard to the place of prenatal consultation, our result could be explained by the fact that health centers (basic structures) and medical offices are the closest health structures to the population.

The most frequently found reason for admission was labor (85.56%) followed by HPPI (36.67%). A study carried out in Senegal made the same observation [5]. In our series we recorded a significant rate of non-term pregnancy (20.56% versus 10.56%) leading to premature delivery. According to Lacomme I [10], prematurity can lead to retained placenta, which is complicated by postpartum hemorrhage following a defect in the cleavage between the placenta and the myometrium. Compared to vaginal delivery, two situations could explain postpartum hemorrhage. A brutal delivery leading to the expulsion of the fetus and its annexes blocks it on the one hand and on the other hand the weight of the fetus exerting a brutal traction on the umbilical cord which tears the placenta in its movement and thus promoting retention of the cotyledons and trauma to the birth canal. Postpartum hemorrhage due to uterine atony (66.67%) was the most common cause, followed by retained placenta in 21.11%. These data are in line with those found by other authors [5,11,12].

Twin pregnancy and other factors favoring uterine over distension are risk situations that are classically incriminated in its occurrence [12,13]. The identification of these risk factors during prenatal follow-up and active management of delivery whatever the route of delivery are the pillars of the prevention of HPPI by uterine atony. Postpartum hemorrhage remains a major public health problem and remains the leading cause of maternal mortality [14]. Regarding the delay in diagnosis, it appears in our study that there is a considerable delay in diagnosis since it is an obstetric emergency which would also delay treatment. The same observation was made by Faye Dieme [5] in Senegal reporting an average delay of 132 minutes with extremes of 2 minutes and 19 hours and this delay occurs especially in patients evacuated for the same reason. Other authors had made the same observation and demonstrated the negative impact of this delay in diagnosis and treatment on mortality rate due to immediate postpartum hemorrhage [7,15]. In order to reduce the diagnosis time and thus allow a rapid, precise and adapted intervention, it is imperative to set up in our maternities alternative methods to the sampling pot by replacing it with the sampling bag under the buttocks.

Management of postpartum hemorrhage: According to international recommendations, the treatment of immediate postpartum

hemorrhage must be provided by a multidisciplinary team and based on validated protocols [16,17]. All our patients had received oxytocin during the initial treatment in accordance with these recommendations. However, uterine massage, which must systematically be performed concomitantly with the administration of oxytocin, was not always effective (40.56%).

Misoprostol, recommended in case of persistent bleeding despite the administration of oxytocin, was used in more than half of our patients (59.44%). However, it should be noted that the average dose administered (682 µg) was well below the recommended dose of 800 µg by sublingual route [17]. Regular updates from providers on the protocols for the initial management of immediate postpartum hemorrhage seem necessary to us in order to reduce the incidence of severe immediate postpartum hemorrhage refractory to medical treatment and thus avoid hysterectomy for hemostasis. This was achieved in 1.11% of cases, which is comparable to the rate of 1% noted in most developed countries [3]. On the other hand, this rate is much lower than that of 7% reported in Togo [7] and 8.7% in Senegal [5].

In our countries, this radical method often represents the only recourse in the face of persistent bleeding after medical treatment, as arterial embolization is not available. This low rate of hysterectomy has various reasons: on the one hand the lack of resuscitation product (blood products +++) and the delay in evacuation of patients. Intra-uterine tamponade by wicking was used in 13.88% of our patients with satisfactory results (90.7%). Among the mechanical methods, there is the balloon made using a condom, not used here; whereas it is an effective, accessible, simple to implement and non-invasive method that improves the management of hemorrhage refractory to initial treatment [18]. Its effectiveness is comparable to that of the Bakri balloon with a success rate of 86% in the Alouini series [19] and to that of intrauterine packing which has an estimated success rate of 91.9% [20].

Several studies have confirmed the acceptability of the intrauterine balloon, its low cost, its harmlessness and its ease of use in our low-resource countries lacking interventional radiology [13,18,21]. Because of all these shortcomings noted in the diagnosis and treatment of these obstetric pathologies, the emphasis must be placed on prevention, in particular the strict application of all the stages of the active management of the 3rd stage of childbirth.

Maternal prognosis

Maternal mortality from obstetric hemorrhage has been proposed as a marker of quality of care in obstetrics because more than 80% of deaths are considered avoidable and are linked to suboptimal care [22]. The lethality (8.89%) found in our series is significantly lower than those reported by Tégoué I et al [6] in Mali (16.6%) and Agbetré N et al., [23] in Togo (13.2%). In France, a reduction of around 1/3 in the maternal mortality rate from obstetric hemorrhage was noted between 2001-2003 (2.3100,000 live births) and 2007-2009 (1.5100,000). This reduction was mainly attributable to a significant decrease in bleeding due to uterine atony (73% versus 54%) unlike bleeding due to placental insertion anomaly, which saw their rate increase (9% versus 23%) [24]. This high lethality in Africa stems from all the shortcomings noted in the quality of prevention and management of immediate postpartum hemorrhage. They are attributable to the lack of qualified personnel in the peripheral structures in less resuscitation, in emergency product including blood derivatives and the means of adapted transfer.

In our series, the main cause of death from immediate postpartum hemorrhage was disseminated intravascular coagulopathy complicated by shock, more frequently encountered in evacuated patients. In the multi-country study by Tort J [13], the risk of maternal death was lower in facilities with an obstetrician compared to those with a physician skilled in basic emergency obstetric and neonatal care (OR=0.55 [0.35-0.85] and higher in evacuated patients (OR=13.35 [6.20-28.76]).

This shows once again the need to multiply the structures of basic emergency obstetric and neonatal care so that all cases of immediate postpartum hemorrhage can be optimally taken care of within the childbirth structure in both our developing and developed countries. Postpartum hemorrhage is the main cause of severe morbidity. In our series, disseminated intravascular coagulopathy complicated by shock was the main complication (47.22%) compared to 74.86% in the study by Akpadza K [11]. In addition to anemia and the direct consequences of acute hypovolemia, hemorrhage exposes the woman to complications of transfusion, resuscitation and sterility in the event of hysterectomy [3].

Conclusion

Immediate postpartum hemorrhage is a major obstetric emergency which, despite awareness of the risk associated with its occurrence, remains the leading cause of maternal mortality. Its frequency was 3.12% with a maternal lethality of 8.89%. This study has identified a number of factors on which action should be taken to improve the quality of the management of postpartum hemorrhage, and thus contribute to reducing morbidity and mortality in our structures. These include the delay in diagnosis and treatment, particularly in evacuated patients, as well as the lack of blood products. Particular emphasis should be placed on the availability, at all levels of the health pyramid, of competent personnel in emergency obstetric and neonatal care capable of early diagnosis and rapid implementation of treatment for hemorrhage. Immediate postpartum based on simple and accessible protocols such as the use of misoprostol and the intrauterine balloon which have proven their effectiveness in countries with limited resources.

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