

Audit of Management of Immediate Postpartum Hemorrhages in Parakou (Benin)

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Abstract

Objective: Identify dysfunctions in the management of IPPHs.

Methods: It was an operational research of clinical audit type based on criteria. For each IPPH case, criteria had been broken down into 41 key actions necessary for its management. We considered as dysfunction, any action identified as not meeting 85% of the criteria.

Results: The frequency of IPPHs in the unit was 8.07%. The average score of dysfunction was 9 for the management of an IPPH. Dysfunctions were registered at all stages of care. Referrals, emergency and hospitalization were the most affected by dysfunctions. Lack of material resources, drugs and blood contributed to extend the time of initiation of etiological treatment.

Conclusion: The analysis of the actions implemented during the process of management of immediate postpartum haemorrhages (IPPHs) helps identify the levers that should be operated to improve the quality of services. The correction of those dysfunctions could help reduce maternal mortality in the medical unit.

Keywords: Audit; IPPH; Dysfunction; Maternal mortality

Introduction

Immediate post-partum haemorrhage (IPPH) is the first cause of maternal mortality in the developing countries [1,2]. Its management requires putting in place an organization which sensibly minimizes delays [2]. For that organization, the availability of human resources and protocols suited to our working conditions are prerequisites [3]. The analysis of the actions developed while providing care to newly delivered women suffering from IPPH helps identify the levers that could be operated to rebuild the correct reflexes. This is the framework within which this study had been initiated in order to identify dysfunctions in the management of IPPHs at the gynecology and obstetrics unit of the Borgou Regional Hospital (CHDB) in Parakou (Republic of Benin).

Materials and Methods

Study setting

The CHDB's gynecology unit provided the setting for this research work. It is the reference service that receives almost all the obstetrical emergencies of the district of Parakou and its surroundings (1100 referrals in 2006). It had 68 beds and performed about 2600 child deliveries per year. It included two physicians performing stand-by duty of 7 days each. There were 12 mid-wives of whom 8 assigned to the delivery room to be on stand-by duty for 12 hours.

Audit method

It was an operational research of clinical audit type based on criteria, which concerned all IPPH cases handled at the CHDB's gynaecology and obstetrics unit during the period from January 1, 2009 to December 31, 2010. It was based on the study of birth records that experienced HPPI.

Study population

It comprised 314 newly-delivered vaginally women who met the criteria below:

Inclusion criteria: All the women with hemorrhage from genital tract which occurred while giving birth or within the 24 hours following delivery, regardless of quantity, and which was associated with at least 2 of the signs below:

Pale conjunctivas, systolic blood pressure <80 mmHg, thready pulse, agitations, cold sweats, peripheral coldness or cold extremities, severe thirst, impaired consciousness or which required blood transfusion or hemostatic hysterectomy.

Exclusion criteria: All the women whose blood loss through genital tract did not have a serious impact on the general condition and whose medical records were not usable.

The technique of clinical audit based on the following criteria (Table 1) had been used to identify dysfunctions.

For each IPPH case, criteria had been broken down into 41 key actions necessary for its management.

Assessment criteria: We considered as dysfunction, any action identified as not meeting 85% of the criteria. Dysfunctions had been identified according to the therapeutic itinerary of the patient since her admission until leaving hospital.

Applicable standards	Criteria applied
The initial assessment of the patient must be done within the first 15 minutes.	Patient has been assessed within the first 15 minutes.
Etiological treatment must be performed within 30 minutes.	Etiological treatment has started within 30 minutes.
Major surgeries (suture of a uterine rupture, hysterectomy, vein ligation) must be performed within 60 mn.	Major surgery has started within 60 mn.
Massage the uterus to have it contracted.	Patient's uterus got massaged.
Stop hemorrhage with an oxytocic drug by intramuscular injection (10 units of oxytocin).	Oxytocin (10 units by intramuscular injection) has been administered to the patient.
Blood sampling to measure the rate of hemoglobin and determine blood group and blood compatibility.	The rate of hemoglobin has been measured and noted; blood group has been determined and blood compatibility assessment has been performed and all those results have been recorded.
Start intravenous infusion with 20 units of oxytocin at the rate of 60 drops per minute.	Oxytocin has been administered by intravenous injection (20 units at the rate of 60 drops per minute).
Evacuate the bladder with a probe.	A bladder catheter has been installed.
If placenta has not been expelled: try to expel it by controlled cord traction (CCT) or by manual evacuation with sedative within 30 mn.	CCT test. In case of CCT failure, artificial delivery within 30 mn.
If placenta has been expelled and hemorrhage continues or in case of shock, exclude rupture of the uterus, pelvic examination within 30 mn.	If hemorrhage continues, or in case of state of shock, pelvic examination has been performed.
Inspect perinea, vagina and cervix for tears or lacerations, and suture them immediately.	Perinea, vagina and cervix lacerations or tears have been sutured.
Keep on checking vital signs every 15 to 30 minutes till stabilization of patient's condition.	Vital signs have been checked every 15 to 30 minutes and recorded.
The number of ordered blood units must be the number of units received.	Percentage of ordered units which have been received.
Blood transfusion must be performed within 30 mn.	Blood transfusion is performed within 30 mn.
Patient's discharge must happen after her clinical condition has returned to normal.	Patient's discharge has occurred after bleeding has stopped and vital constants have returned to normal.

Table 1: Criteria for the assessment of care quality.

Data collection: Data collection had spread out over a period of four weeks. Data were collected with survey sheets, registers of consultations and medical records. Variables studied were: emergency

care (care deadline, diagnosis, treatment quality and patient monitoring); care monitoring (surveillance, treatment, clinical monitoring and biological monitoring); leaving hospital (patient's clinical condition and instructions for a continuum of care).

Data analysis: The procedure consisted in extracting data from the medical records, aggregating data and determining the percentage of IPPH cases that had been provided quality health care meeting the defined criteria. The software used for data processing and analysis is EPI-INFO 2008 version 3.5.1.

Results

Frequency

During the study period, 314 IPPH cases were registered for 3891 deliveries, i.e. a frequency of 8.07%. Among the 314 IPPH cases, 227 cases (5.83%) were referred and 87 cases (2.24%) gave birth to a child at the CHDB maternity.

Distribution of newly-delivered women with IPPH by age and parity

The mean age of the newly-delivered women was 26.32 years \pm 8.80. The youngest one was 15 years old and the oldest one was 43 years. Average parity was 5 \pm 2.22 with extremes ranging from 1 to 8. The distribution of the newly-delivered women based on age and parity is in Table 2.

Age	Number	Percentage	Standard deviation
15 years-19 years	44	14.01	26.58 \pm 8.80
20 years-24 years	87	27.70	
25 years-29 years	81	25.79	
30 years-34 years	62	19.75	
35 years-39 years	33	10.51	
40 years-44 years	07	02.24	
Total	314	100	
Parity			
Primiparous (1 deliv):	40	12.74	5 \pm 2.22
Average multiparous: 2 to 3 deliv.	181	57.64	
Multiparous: 3 to 6 deliv.	51	16.24	
Grand multiparous more than 6 deliv.	42	13.38	
Total	314	100	
Deliv: delivery			

Table 2: Distribution of IPPHs based on age and parity.

Distribution of the different causes of IPPHs

Immediate post-partum hemorrhages are due to several causes of which Table 3 below gives us a distribution.

For 314 newly-delivered women with IPPH, 2678 dysfunctions were registered, i.e. about 9 dysfunctions per newly-delivered woman. For a total of 41 gestures to be done per newly-delivered woman, there are therefore 9 dysfunctions. It follows that 1 gesture out of 4 did not meet quality standards.

	Number	Percentage
Retained placenta	131	41.72
Cervical tear	91	28.98
Uterine atony	47	14.97
Perineal and vaginal tears Tears/Lacerations	43	13.69
Uterine rupture	02	0.64
Total	314	100

Table 3: Distribution of IPPH causes.

Dysfunctions in the management process

During the study period, we had identified 2678 cases of dysfunction. The levels of criteria compliance and registered dysfunctions are detailed in Table 4.

Steps of care affected by dysfunction	Criteria compliance		Dysfunctions		
	Proport.	Percent.	Number	Percentage	
Referral conditions					
Referral sheet	105/227	46.26%	122	551 (20.47%)	
Medical transport	25/227	11.01%	202		
Referral centre information	00/227	00%	227		
Initial assessment					
Respiratory frequency	03/314	0.95%	311	558 (20.73%)	
Coagulation test	67/314	21.34%	247		
Care deadline					
Deadline for performance of emergency skills					
Blood transfusion or plasma perfusion within 60 mn	7/29	24.14%	22	242 (8.99%)	
Deadline for etiological treatment					
Pelvic examination	95/232	40.95%	137		
Artificial delivery	25/51	49.02%	26		
Suture of perineal, cervix and vagina	96/134	71.64%	38		
Suture of uterine rupture	00/2	00%	2		
Vein ligation	2/5	40%	3		
Hemostatic hysterectomy	1/2	50%	1		
Management					
Emergency skills					
Vascular filling	19/29	65.51%	10	205 (7.62%)	

Oxygen therapy	07/29	24.14%	22	
Transfusion	21/29	72.41%	8	
Etiological management				
Uterine massage	67/232	21.34%	165	
Care monitoring during hospitalization				
Monitoring				
Drafting of monitoring sheet	176/314	56.50%	132	821 (30.51%)
Pulse and Blood pressure	98/314	31.21%	216	
Respiratory frequency and diuresis	03/314	0.95%	311	
Biological monitoring				
Rate of hemoglobin control	152/314	48.41%	162	
Discharge of patient				
Timely clinical condition	241/314	76.75%	73	314 (11.68%)
Instructions given	73/314	23.25%	241	
Total				2678

Table 4: Distribution of dysfunctions while providing care.

Discussion

Clinical audit based on quality criteria offers the benefit of a systematic evaluation of care provisions. With audit based on those criteria, it is easier to exercise objectivity and take the heat out the debate so as to identify problems [3]. It helped us put an emphasis on all the shortfalls and deficiencies in the management of immediate post-partum hemorrhages at the gynecology and obstetrics unit. The only limitation of this research work is that the lack of systematic documentation of actions performed may have contributed to increase the number of dysfunctions since, as a matter of principle and for this type of audit all that is not written has never existed» and therefore it is considered as dysfunction [3].

Frequency of IPPHs

The frequency of IPPHs treated in the unit has increased from 6.04% in 2008, according to an unpublished study conducted in the unit, to 8.07% in 2011; i.e. a 2.03% rise. This increase focused on referred IPPH cases, which ranged from 1.66% of the cases to 5.83% of the cases. This is due to the increasingly high number of referrals toward the CHD/B's gynecology and obstetrics unit which in fact operates like a first level referral hospital because users do not comply with the guidance system [4]. Moreover, the implementation within the unit of preventive measures recommended after the initial study may have contributed to the occurrence of IPPHs in the unit.

Age and parity

The analysis of results points out the preponderance of age groups between 20 and 34 years on the one hand, and the importance of risk ages and parities; the ones under 20 years of age and those above 39 years of age represented 16.23% and large grand multiparity reached

13.38%. These results are close to the general trend observed in african studies [5,6].

The same trend over the age was confirmed in the study of maternal mortality in France [7].

The causes of IPPHs

Lesions of the birth canal were the most relevant causes of IPPH in our study. They were followed by retained placentas. In all the studies, atonies and uterine inertias are the first causes of IPPHs [1,5]. Our results may be due to a deficiency in the implementation of preventive measures which are active management of the third stage of labor (AMTSL) and rigorous management of the push contractions phase of labor.

Dysfunctions

As Prual underscored [8], even though African countries have done significant efforts of investments in health facilities, accessibility and quality are not always matched. During our research work, the audit helped put in evidence 2678 cases of dysfunctions in 314 women who suffered from IPPHs. The importance of dysfunctions suggests us the weak quality of care provided for IPPHs in the unit. It reveals a deficiency in the standards and protocols. As in Côte d'Ivoire, these dysfunctions were encountered at all stages of care [9]. Since referrals (20.47%) in our study, till those newly-delivered women leave (11.68%) going through initial assessment (20.73%) and monitoring during hospitalization (30.66%).

Referral conditions

Referral conditions represented 20.47% of dysfunctions in the IPPHs management. Those dysfunctions were symbolized by medical

transport deficiency. It had been used for 11.01% of newly-delivered women referred for IPPH. Authors had already made the same remark in the South-Benin's hospitals in 2006 [10]. The unstable hemodynamic condition observed on the admission of referred women may be the outcome of that bad condition of transfer. Nevertheless, the stability of hemodynamic condition is a prerequisite for prognosis, as the information provided on sheets in the hands of newly-delivered women helped save time. In our study, 46.26% of newly-delivered women referred for IPPH had sheets likely to provide information on their condition. No referred woman was announced at the referral centre. They used to arrive unannounced. It was not possible to take specific measures to attend them. The lack of communication between the different components of the health system in Benin identified by some authors [10] may explain the dysfunctions noted at this level. The improvement of referral conditions would facilitate accessibility to the referral maternity of Parakou. As well, one proposes an option which consists in connecting health centers and hospitals by radio and sending hospital ambulance in emergency situations [11].

Emergency care

It is in the sector of emergencies that 20.73% of dysfunctions are identified. It dealt with initial assessment of the patients' condition. Those deficiencies in the assessment of clinical condition severity upon admission often lead to inappropriate resuscitation. It is known that prognosis depends on that resuscitation [12]. In our communities where good quality of care is regarded as survival of patients, its improvement at emergencies may contribute to a better perception of the gynecology and obstetrics unit and, therefore, to its optimal use. Besides, the unavailability of oxygen and solutions in the emergency sector contributed to increase dysfunctions.

Etiological management

At this level, care quality is severely limited by deadlines of etiological treatment implementation which are above standards. Causes of dysfunctions were: unavailability of operating rooms; lack of anesthesiology personnel for surgical units of the hospital; lack of stand-by duty unit for physicians; shortages of drugs at the hospital pharmacy. African authors [10] stressed the unavailability of resources as the factor associated with the extension of care deadlines. It is the result of mismanagement of drugs and consumables stocks in the pharmacies of our hospitals. The country's health authorities must pay special attention to this recurrent issue of shortage of drugs and consumables stock which limits the optimal management of obstetrical emergencies [4,5]. Moreover, the second operating room must be put into service in order to avoid time losses which are detrimental to patients. From this same perspective, it is worth converting doctors' compelled work into stand-by duty system and increasing the number of midwives so as to comply with the 8 hours stand-by duty standard prescribed for this class of service providers.

Care monitoring during hospitalization

The monitoring of newly-delivered women who suffered from IPPHs was the most affected in hospitalization with 30% of dysfunctions. This could be the result of reduced monitoring or scrutiny after the service provider has the feeling of having mastered the case. Yet, it is during that period that a hemorrhage could occur again through uterine atony. In Côte d'Ivoire, 42% of the dysfunctions registered in the management of near miss occurred in that sector [9].

The high frequency of dysfunctions registered at emergencies and during hospitalization could be the result of lack of resources, especially human resources. Lack of personnel was raised as the factor contributing to the poor quality of management of severe maternal morbidities in Gabon [13]. In fact, those personnel are sometimes reduced to a strict minimum to deal with the influx of referred patients and to ensure monitoring during hospitalization. Moreover, the non-contiguity of delivery room and immediate post-partum monitoring room may have contributed to increase those dysfunctions. We agree with Ivorian authors who noted 91.8% of dysfunctions in those two sectors where patients were very vulnerable in periods where they were most in need of adequate and quality care [9]. A reconfiguration in the arrangement of delivery and immediate post-partum rooms should be carried out so that the 6 first hours of immediate post-partum monitoring comply with quality standards.

Discharge of patients

It is affected by discharges against medical advice under the pressure of female carers. Actually, families do not always wait for doctor's discharge decision before demanding authorization to leave hospital. Those early or premature discharges are often due to financial reasons. Besides that, there are cultural reasons, mother having the obligation to attend the new-born baptism. Apart from those early discharges, there are evasions which do not allow any continuum of care. The consequences of those discharges or exits are catastrophic readmissions sometimes followed by women death.

Conclusion

Our study showed that shortcomings in the management of HPPI are more marked at references to emergencies and when tracking hospitalization patients. Correcting these problems will improve the quality of care for HPPI and reduce maternal mortality in the service.

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