



Satisfaction and Time to Obtain Blood Products in Obstetric Emergency Situations at Sylvanus Olympio Teaching University Center of Lome

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

Objective: It was to evaluate the satisfaction and delay in obtaining blood products during obstetric emergencies at the Sylvanus Olympio University Hospital Center.

Methodology: This is a prospective study conducted from June 2017 to May 2018, including 252 pregnant women and women who had received a blood transfusion in a context of genital haemorrhage or anaemia. Our data were captured and processed with CSPRO and IBM SPSS 25 software.

Results: The mean age of the patients was 30 +/- 8 years old. The paucigales and pauciparas

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were the most transfused respectively in 63% and 48%, followed by primigest (32%) and nulliparous (32%). Seventy-four per cent (74%) of the patients were referred, 26% were self-referred. Indications for transfusion were dominated by haemorrhagic abortion (26.6%) and postpartum haemorrhage (20.6%), followed by retroplacental hematoma (13.9%), uterine rupture (12.3%). Hemorrhagic placenta previa (10.7%) ruptured GEU (10.3%), sickle cell disease (3.2%) and malaria (2.4%). Cutaneo-mucous pallor was observed in all patients. Asthenia was present in 41.30%, vertigo 34.10%, shock state 31%, oedema 2.38% and coma 1.60% of cases. The pre-transfusion haemoglobin level was achieved in 73% and post-transfusional in 96%. CNTS was the most popular blood supply centre at 81.3%, followed by CHU-SO in 6.3%.

Conclusion: Blood transfusion in obstetric emergencies is a maternal rescue act. But the absence of a blood bank at the maternity ward delays the care.

Keywords: Obstetric emergencies; haemorrhage; anaemia; transfusion.

1. INTRODUCTION

All pregnant women are at Risk of obstetric complications requiring transfusion need more often, with most life-threatening complications occurring during pregnancy, delivery, and / or postpartum. These obstetric complications are found all over the world. They are common in developing countries where they are responsible for high fetal-maternal mortality and morbidity. Haemorrhage remains an important cause of maternal mortality. According to a study conducted in Africa by the World Health Organization, of 585,000 women who die each year from complications of pregnancy and childbirth, one quarter succumbs to bleeding [1]. In the therapeutic arsenal, the use of blood transfusion remains a possible event. The range of indications of transfusion therapy explains the considerable increase of the latter [2]. Developing countries are providing their medicine with this therapeutic tool, but with many difficulties. Blood transfusion is a very frequent therapy in gynaecology and obstetrics, and as delicate given the many risks associated with labile blood products [3]. Respect for transfusion safety rules is the only way to reduce the frequency of complications related to blood transfusion; hemovigilance plays a key role [4]. The daily observation of the transfusion practice in the obstetrics and gynaecology department of the Sylvanus-Olympio University Hospital Center (CHU-SO) shows the existence of the delay in the care of our patients. As a result, this study was initiated to assess transfusion requirements in emergency obstetric conditions at the CHU-SO maternity ward.

2. PATIENTS AND METHODS

The gynaecology-obstetrics department of the CHU-SO served as a study framework. The

CHU-SO is a centre of care, teaching and research. Our study looked at 252 pregnant women and children admitted to the CHU-SO maternity ward in a context of genital haemorrhage or anaemia. We included in our study any pregnant or childbearing admitted in emergency or not, referred or not referred to the gynaecology-obstetrics department and who presented with anaemia that required a blood transfusion. This was a prospective study over a 12-month period from June 2017 to May 2018. Our data were captured and processed with CSPRO and IBM SPSS 25 software. We used the khi2 test at the threshold of 5% for statistical analysis of qualitative data.

3. RESULTS

3.1 Epidemiological Data

3.1.1 Age of patients

Most of our patients (44.8%) were between 30 and 39 years old. The average age of our patients was 30 +/- 8 years old (Fig. 1).

3.1.2 Ethnic group of patients

The Ewe ethnic group was the most represented in 48% of cases (Fig. 2).

3.1.3 Profession of patients

The majority of our patients were housewives and shopkeepers respectively in 36.9% and 22.6% of cases (Table 1).

3.1.4 Level of education of patients

More than half of the patients (57.1%) had a secondary level of education. Only 4% had a tertiary level (Table 2).

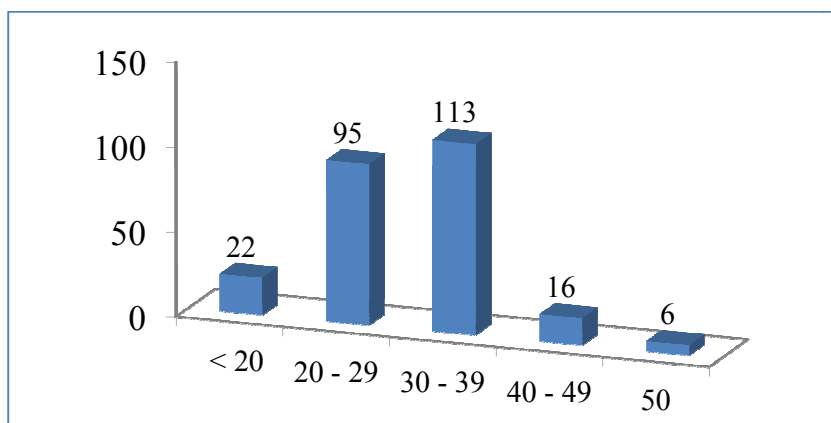


Fig. 1. Distribution of patients by age

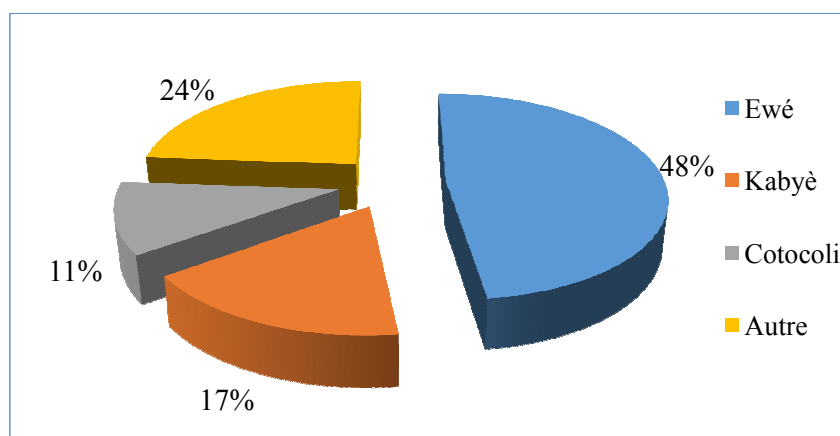


Fig. 2. Distribution of patients by ethnicity

Table 1. Distribution of patients by occupation

	Number	Percentage (%)
Housewife	93	36.9
Shopping	57	22.6
Workers	33	13.1
Apprentice	21	8.3
Student	19	7.5
Teacher	11	4.4
Student	10	4.0
Cultivatrice	8	3.2
Total	252	100.0

Table 2. Distribution of patients by level of education

	Number	Percentage (%)
Primary	67	26.6
Secondary	114	57.1
Tertiary	10	4.0
Not educated	31	12.3
Total	252	100.0

3.2 Antecedents

3.2.1 Patient gestation

The majority of patients, 63%, were paucigests. The primigest and the multi-gestate represented respectively 32% and 5% (Fig. 3).

3.2.2 Parity of patients

The majority of the transfused patients were pauciparous or 48% followed by nulliparous 32%, primiparous 14% and multiparous 6% (Fig. 4).

3.3 Mode of Admission of Patients

Seventy-four per cent (74%) of the patients were referred, 26% were self-referred (Fig. 5).

3.4 Therapeutic Aspect

The time between prescription and obtaining the blood product Eighty-one per cent (81%) of patients had obtained blood products only after a waiting time of more than 2 hours; 17% of patients between 1 and 2 hours and only 2% of patients before 1 hour (Table 3).

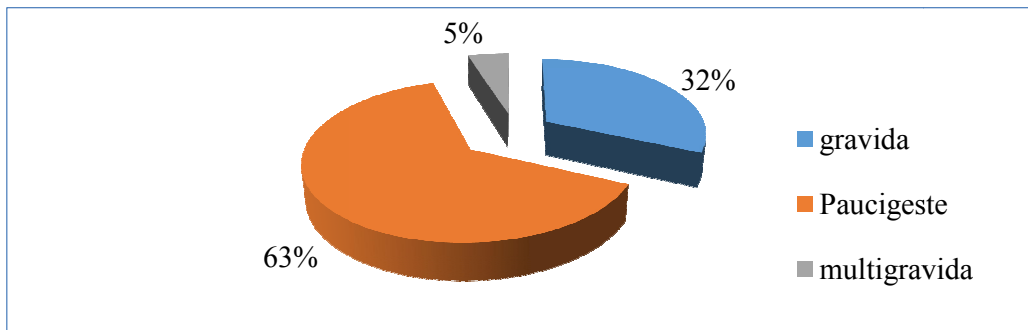


Fig. 3. Distribution of patients by Gestity

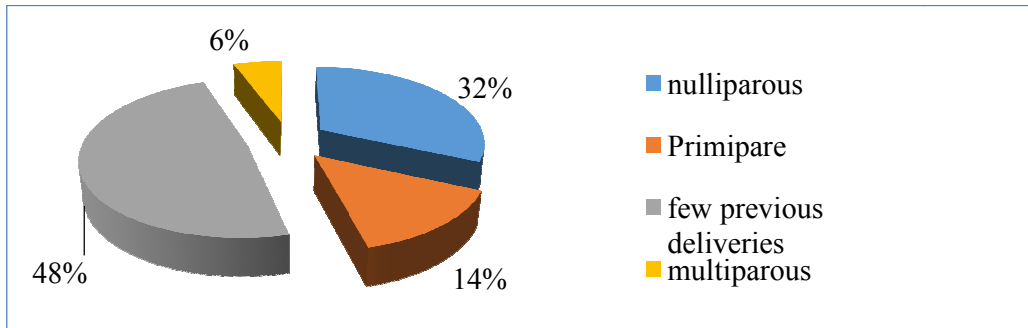


Fig. 4. Distribution of patients by parity

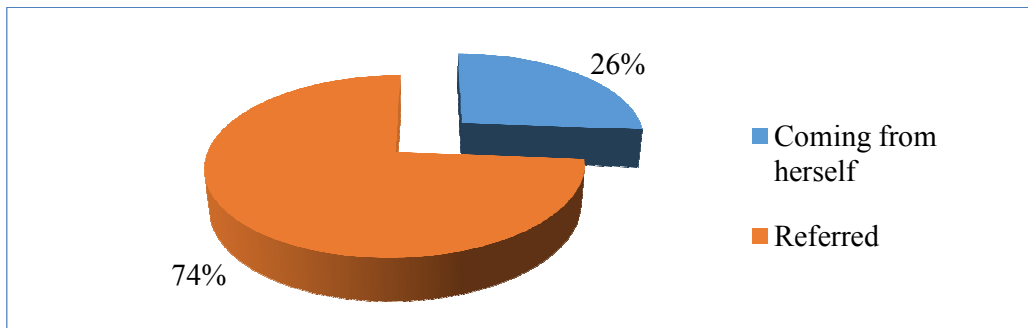


Fig. 5. Patient distribution by admission mode

Table 3. Distribution of patients according to the delay between the prescription and the obtaining of the blood product

	Number	Percentage (%)
< 1 hour	5	2.0
1 - 2 hours	43	17.0
> 2 hours	204	81.0
Total	252	100.0

Table 4. Distribution of rhesus grouping according to the time taken to obtain the blood product

	< 1 h	1 - 2 h	> 2 h
A+	2	9	36
A-	0	4	20
B+	0	7	29
B-	0	1	11
AB+	0	1	8
AB-	0	0	15
O+	3	19	65
O-	0	2	20
Total	5	43	204

3.4.1 Rhesus grouping according to the time of obtaining the blood product

No A-, B +, B-, AB +, O- blood product pouches were honoured within one (1) hour after the prescription; group AB- was only found after 2 hours of waiting (Table 4).

3.4.2 Prescribed red blood cell cap

More than two bags of CRG were prescribed in 64.3% of patients, 35.7% had a prescription of 1 to 2 bags (Table 5).

Table 5. Distribution of patients by number of prescribed red blood puff pockets

n	Number	Percentage (%)
1-2	90	35.7
> 2	162	64.3
Total	252	100.0

n = number of prescribed RGCs

3.4.3 Red blood cell found

Eighty-one point three per cent (81.3%) of the patients had found 1 to 2 pockets of RGC, 18.7% had found all of the prescribed RBC bags (Table 6).

3.4.4 Satisfaction with the demand for red blood cell pellet

Two hundred and five patients (81.3%) were able to find 1 to 2 bags of CRG. Of 162 patients who received more than 2 bags of RGCs, only 47

patients were able to find all of the requests, a satisfaction rate of 29.01% (Table 7).

Table 6. Distribution of patients by the number of red blood cell pellet pockets found

n	Number	Percentage
1-2	205	81.3
> 2	47	18.7
Total	252	100.0

n = number of RGCs found

Table 7. Comparison of the number of patients who received the red blood cell application and those who found the red blood cells

	Number of red blood cells	
	1-2	> 2
Patient (prescribed pellet)	90	162
Patient (found pellet)	205	47

3.4.5 Frozen fresh plasma prescribed

Seventy-four points six per cent (74.6%) of patients had received 1 to 2 PFC bags and 25.4% more than 2 bags (Table 8).

Table 8. Distribution of patients by number of prescribed PFC pockets

n	Number	Percentage (%)
1-2	188	74.6
> 2	64	25.4
Total	252	100.0

n = number of PFC bags prescribed

3.4.6 Frozen fresh plasma found

Eighty point three per cent (91.3%) patients had found 1 to 2 PFC bags prescribed, 8.7% had found more than 2 pouches all of the prescribed pouches (Table 9).

Table 9. Distribution of patients by number of PFC pouches found

n	Number	Percentage
1-2	230	91.3
> 2	22	8.7
Total	252	100.0

n = number of PFC bags found

3.4.7 Satisfaction with the demand for fresh frozen plasma

Of the 252 patients, 230 had found 1 to 2 PFC pockets. Of the 64 patients who received more

than 2 PFC bags, only 22 patients were able to find all of the prescribed bags, a satisfaction rate of 34.4% (Table 10).

Table 10. Comparison of the number of patients who received the PFC prescription and those who found the PFCs

	Number of PFCs	
	1-2	> 2
Patient (prescribed PFC)	188	64
Patient (PFC found)	230	22

3.4.8 Supply center

CNTS is the most popular blood supply centre in 81.3%, followed by CHU-SO in 6.3% of cases. One point six per cent (1.6%) of the patients went to CHR Kara, CHR Sokodé and Ghana.

4. DISCUSSION

We conducted a prospective study conducted over a period of one year, from June 2017 to May 2018. It concerned the blood transfusion activity of the department and consisted of assessing the blood product requirements in obstetric emergencies at the CHU-SO maternity ward. This study made it possible to make a point of the question in our service which is the maternity of reference receiving obstetric emergencies coming from other centres. We encountered a number of difficulties: The loss of certain ANC cards, some referrals without a referral card, the absence of a venous approach in the evacuated patients, the absence of a minimum balance (Rh grouping, Hb). It should also be noted that the delay in evacuation of patients sometimes required transfusion without waiting for the result of the initial Hb level; in this case the quantity of transfused blood product is a function of the clinical state of the patients without evaluation of the haemoglobin level to be reached. The estimate of the time between the demand and the availability of blood was made by taking the time of the beginning of the transfusion less the time at which the blood voucher was issued. Sometimes the time of prescription is missing in some cases.

The majority of our transfused patients in obstetric emergencies were between 30 and 39 years old. On the other hand, Azanhoue [5], in a study made in 2008 in Benin, had found a lower age group, that is to say between 26 and 30 years old. The high number of students in our study is explained by the fact that the 30 to 39

age group is the largest period of maternity in Togo.

The majority of our patients were ethnic Ewe. This preponderance of ethnic Ewe is explained by the fact that our framework of study (Obstetric Gynecology Department of the CHU-SO) is south of Togo where predominates the Ewe ethnic group.

Most of our transfused patients were pauciparous, ie 48.4%. Multiparas were the least transfused at 5.6%. This is explained by the fact that pauciparous were more enumerated during the study period. Our results are similar to that of Andriamandrato et al. [6] in Madagascar, which found a predominance of pauciparas in 67.58% and a lower percentage for multiparas, ie 32.4%.

In our series, hemorrhagic abortion was the first indication of blood transfusion in 26.6% of cases, followed by postpartum haemorrhage in 20.6%. On the other hand, Andriamandrato et al. [6] and Regal et al. [7] found respectively in their studies the hemorrhagic placenta previa (56.54%) and the haemorrhage of the delivery as being the first cause of blood transfusion in the patients. obstetric emergencies. At the risk of postpartum haemorrhage (20.6%) was added the iron deficiency decompensated by pregnancy in 2.4% of cases in our study as in that of Allen [8]. Goffinet and al. in France [9], Bohoussou [10] in Abidjan found respectively in their series of postpartum haemorrhage frequencies lower than ours either 5.2% and 2.08%. This high workforce is explained by the inadequacy of the technical platform of care in our obstetric environment. In contrast, the high frequency of postpartum haemorrhage in the Goffinet study compared with Bohoussou was due to the fact that the evaluation method for Goffinet haemorrhage was more precise so that the less amount of blood flow was taken into account.

The blood group ABO Rhesus was performed urgently in our patients who did not have one. Its determination is indispensable for the prescription of the blood product. The pre-transfusion haemoglobin level was achieved in 73% of our patients and was less than 8 g / dl. In 27% of patients, the pre-transfusion haemoglobin level was not achieved; this was observed in situations of extreme urgency where the transfusion had been performed without waiting for the result of the haemoglobin level. The majority of our patients (57.9%) had post-

transfusion haemoglobin levels ranging from 7 to 9 g / dl; this control was not done in 4% which corresponded to the case of death. Andriamandrato et al. [6] found lower achievement percentages than ours: 8.7% pre-transfusion haemoglobin and 26.9% post-transfusion haemoglobin. The indication of blood transfusion in our study is based both on haemoglobin values and on the clinical tolerance of anaemia, ie severe anaemia with a haemoglobin level of less than 8 g / dl poorly tolerated or in case of additional bleeding. On the other hand, the French National Agency for the Safety of Medicines and Health Products and the French High Authority for Health recommends blood transfusion for a haemoglobin level of less than 7 g / dl, which is poorly tolerated [11].

Eighty-one (81%) of our transfused patients had obtained blood bags only after a waiting time of more than two hours. This waiting time, considered too long in an emergency situation, was comparable to that of Lankoandé [12] which was 5 hours 48 minutes in 1996. This could be explained by the long-distance separating the supply centre from the service of gynaecology and obstetrics, the plethoric number of applicants waiting at the CNTS, the non-availability of blood products at the CNTS, the absence of a blood bank at the CHU-SO and the lack of financial resources in some of our patients.

In our study, the blood products used in our patients in obstetric emergencies were CGR and PFC. Our results are similar to that of a study in Burkina Faso that found a prescription of 97.2% RGC [13]. On the other hand, Andriamandrato et al. [6] had found a whole blood prescription in 95.2% of cases.

Out of 162 patients who received the prescription of more than 2 bags of RGC, only 47 patients could find the total demand, ie 29.01%. Similarly, of the 64 patients who received more than 2 PFC bags, only 22 patients were able to find all of the prescribed pouches or 34.4%. The overall satisfaction rate of the demand for blood products for patients who were prescribed more than 2 bags in our series was 30.5%. Our percentage is lower than that of Traoré in a study done in Mali where it found a satisfaction rate of 59.9% [14]. This difference is explained by the fact that Traoré had transfused to their patient's whole blood much more available in Mali whereas in Togo it is the derivatives of the blood that were used and rarely available. The unmet need (69.5%) in our series was due either to the

lack of financial resources of our patients or to the lack of blood products at CNTS. In the latter case, our patients sometimes used other centres outside Lome to get supplies. All these situations partly explained the delay in the care of our patients.

5. CONCLUSION

This prospective study evaluated the transfusion requirements in obstetric emergencies in 252 patients who received a transfusion of RGCs and PFCs in the obstetric-gynaecology department of the CHU-SO from June 2017 to May 2018. The synthesis of the analysis of the survey data allows us to draw from this work devoted to blood transfusion the following points: Blood transfusion in obstetric emergencies should be considered as a maternal rescue act. In order to improve the management of patients with transfusion requirements in the Gynecology-Obstetrics Department of the CHU-SO, it would be advisable to set up a blood bank in the said department in order to allow rapid management of patients Referees and then avoid the delay in prescribing blood products from staff in emergency situations while encouraging the proper and effective maintenance of transfusion monitoring records for better transfusion safety.

CONSENT

As per international standard written and informed participant and in case for children parental consent has been collected and preserved by the authors.

ETHICAL APPROVAL

As per international standard written ethical permission has been collected and preserved by the author(s).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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