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Emergency Neonatal Obstetric Cares at Cocody University Hospital: Overview of Instrumental Extraction

Kakou Charles*, Kasse Raoul, Kouame Arthur, Koime Hervé, Effoh Denis, Gondo Diomandé, Boni Serge

Cocody University Hospital, Abidjan, Côte d'Ivoire
Email: *kakoucharles@yahoo.fr

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Abstract

Objectives: The aim of this study was to show an overview of situation of instrumental extraction at the maternity of Cocody University Hospital by determining availability and assessing the maternal and fetal prognosis. **Patients and method:** it was a retrospective study with a descriptive purpose on 6 months from January 1 to June 31, 2015. It concerned all patients admitted in the expulsive phase of labor delivery room and with an indication of fetal instrumental extraction and the state of their newborns at birth. **Results:** We saved 2288 vaginal deliveries; including 28 instrumental deliveries on 104 indications of instrumental extraction is an implementation rate of 26.9% (16 by vacuum extractor and 12 forceps). Among patients with indication but without instrumental extraction (n = 76), there is 42.3% vaginal delivery (n = 44) and 30.8% of cesarean section (n = 32). 44 have given birth vaginally (42.3%) and 32 by caesarean section (30.8%). It's young patient (28 years), nulliparous (42.3%). Average time between instrumental extraction indication and the delivery of the baby was 58 min in the case of instrumental extraction and 1 hour 41 minutes in the case of spontaneous delivery in anticipation of the c-section. Motherhood had 3 instrumental extractors (2 vacuum extractors and 1 forceps) recycled after each use. The Apgar score was good in 85.7% in children born by instrumental extraction and bad in 54.5% in children born vaginally without instrumental extraction. We found 20 stillborn in intra partum occurred only in children born vaginally without instrumental extraction. Twelve (12) cases of bleeding of the issue by uterine atony (27.3%) were recorded in patients pregnant without instrumental extraction. No maternal deaths were observed. **Conclusion:** The realization of instrumental extraction rate remains low at the maternity of the UH-C. In the event, the fetal prognosis was better.

Keywords

Instrumental Extraction, Forceps, Vacuum Extractor, Availability, Stillbirth

1. Introduction

In Côte d'Ivoire, stillbirth remains high, 49 per thousand [1] This stillbirth occurs especially during the expulsive phase of labor [1]. Rapid fetal extraction by vacuum extraction or by forceps permits to save fetal lives [2] [3] [4] [5] [6]. This practice which is part of the "Emergency Neonatal Obstetric Cares" is little assessed at the maternity of University Hospital of Cocody. We conducted this study, whose general objective was to do the overview of situation of instrumental extraction, by assessing the availability of that procedure when needed, and maternofetal prognosis.

2. Methodology

The study took place in the maternity of the UH-C. It's a retrospective and descriptive study of 6 months; January 1st, 2015, to June 30th, 2015. The studied population was all parturient in expulsive phase of labor and with an indication of fetal instrumental extraction and their newborns. The parturient who did not present an indication of instrumental extraction have not been included in the study. The studied parameters were demographics, gynecological and obstetric history, type of instrumental extraction and fetal and maternal prognosis. Neonatal prognosis has been assessed by the quotation of the Apgar score at birth to 1 minute and 5 minutes of live. A score above or equal 7 is considered good. Below 7 on the 5th minute of life, the score is bad. The data collection was made from the patient record and different records: birth, death and neonatal transfer. The statistical treatment was made from the software Epi info version 6.04.

3. Results

3.1. Clinical Data

We recorded over the period of study 2288 births including 28 instrumental deliveries or 1.2% of births by instrumental extraction. We had only 3 instrumental extractors including 2 vacuum extractors and 1 forceps. A total of 104 indications of fetal extraction, there are 16 deliveries by vacuum extractor (15.4%), 12 by forceps (11.5%), 44 by spontaneous vaginal deliveries (42.3%) and 32 by emergency c-section (30.8%). There have been a total 28 instrumental deliveries is a rate of achievement of instrumental extraction of 26.9% and 76 cases of indication of instrumental extraction not executed (73.1%). The directions were as follows: 72 cases of bad pushing efforts (69.2%) and 32 cases of acute fetal distress (30.8%). The 76 remaining patients, 44 have given birth vaginally (42.3%) and 32 by caesarean section (30.8%). The sociodemographic profile of our patients was as follows: patient older than 28 years on average and often nulliparous (42.3%) (cf. **Table 1**). The average deportation time between the indication

Table 1. Socio-demographic characteristics.

Socio-demographic characteristics		N	Percentage
Age (in years)	15 - 19	8	7.7
	20 - 24	24	23.1
	25 - 29	36	34.6
	30 - 34	20	19.2
	>35	12	15.4
Parity	Nulliparous	44	42.3
	Primipara	32	26.9
	Paucipara	24	23.1
	Multipara	8	7.7
Total		104	100

of fetal extraction and the birth was 58 minutes in the case of instrumental extraction, of 3 h 22 min in the case of caesarean section and 1 hour 41 minutes in the case of spontaneous vaginal.

3.2. Fetal and Maternal Prognosis

The Apgar score was good in 85.7% of neonate born by instrumental extraction (Table 2) and 62.5% of neonate by caesarean section. None of newborns by spontaneous vaginal without instrumental extraction had a good Apgar score. 54.5% of children born vaginally without instrumental extraction. We found 20 intra-partum death occurred only in children born by spontaneous vaginal delivery without instrumental extraction (Table 2). 12 cases of hemorrhage by uterine atony (11.5%) were observed into the group of labouring women who had not chance to benefit to caesarean-section, however necessary for their management. No maternal deaths were noted.

4. Discussion

4.1. Clinical Data

Our practice of instrumental extraction represented 1.2% of vaginal deliveries. However, in the case of indication of instrumental extraction, our realization rate was 26.9%. In the regional literature, at 2008 in Mali for example, Traore [2] reported a rate of instrumental extraction of 3.7%, which is higher than ours. But, elsewhere in the sub region, the realization rate is low [3] [4] [5] [6]. In developed countries [7], instrumental extraction rate is much higher than ours. It was 10.4% into the perinatalogy network nominated Aurore in France [7]. Our low rate could be explained by an insufficient material. Our maternity had only 2 vacuum extractors and 1 re-usable forceps after sterilization. This sub equipment was explained by a lack of acquisition of new equipment. The lack of training of

Table 2. Distribution of the newborns according to delivery mode and APGAR score at 5 minutes of live.

APGAR score	Delivery mode					
	Spontaneous vaginal delivery		Cesarean-section		Assisted vaginal delivery	
	n	%	n	%	n	%
0	20	45.5	0	0	0	0
1 - 3	0	0	4	12.5	0	0
6 - 7	24	54.5	8	25	8	14.3
8 - 10	0	0	20	62.5	24	85.7
Total	34	100	32	100	32	100

$X^2 = 131.4$ (S) ddl = 3.

physicians in the use of an instrument of fetal extraction would be another reason. Indeed only senior doctors have been trained in this practice. Interns and doctors in specialization, providing the guards, were not able to use these instruments because of a lack of training. Generally, a small share of the national budget is assigned to the health care in our developing countries. Regarding the type of instrumental extraction, we found a clear predominance by vacuum extractor (57.1%). Boni [8], in the same department in 2006, was a large predominance of the use of vacuum of 95% against 5% for the forceps. The use of vacuum extractor was easier than that forceps with easy learning as suggests several studies [7] [9] [10] [11]. The indications were dominated by the bad pushing efforts (69.2%) and the acute fetal distress (30.8%). The signs were similar in many African studies [2] [3] [6]. Maternal exhaustion and the abusive use of oxytocin in women fatigued by a long labor would most often a maternal tiredness at the moment of expulsive phase of labor justifying assistance to expulsion. In most of the studies as our, the young age of the patients (28 years) and the nulliparous [3] [4] [5] [6] were often observed. Indeed, inexperience, bad maternal pushing efforts, physical exhaustion in expulsive phase of labor, rigid perineum, constitute the main reasons of instrumental extraction.

4.2. Fetal and Maternal Prognosis

In our context of developing countries, the status of the newborn has been assessed by the Apgar score, which is an important criterion of assessment of neonatal prognosis [12]. We didn't realize arterial or venous pH in the umbilical cord blood. Thus, the Apgar score at 5 minutes of life was good (above 7) in 85.7% of neonate born by instrumental extraction and 62.5% of neonate born by caesarean section. Zero neonates born by spontaneous vaginal delivery got a good Apgar score. The majority of authors agree on the improvement of the Apgar score in case of fast instrumental extraction [2] [6] [8] [13]. In our study, Apgar score was bad in 54.5% of neonate born by spontaneous vaginal delivery.

According to [14], the time of expulsion in the event of instrumental extraction was 30 min significantly lower than ours. This long delay in our study could be explained by a delay of acquisition of material, several attempts of instrumental extraction resulted in failures. These failures would be due to the inexperience of users (internal, doctors in the year of specialization). This long delay had an impact on fetal status at birth. In addition, a precarious fetal state represented by 30.8% (32 cases) of suffering fetal acute, was already present. We found 20 cases of intra partum death occurred only in the group of neonate born by spontaneous vaginal delivery. We did not record neonatal deaths attributable to instrumental extraction. In Senegal, an obstetric team [6] noticed a very low mortality rate, 0.6‰ live births compared to data literature. These facts testify to improving fetal prognosis in case of instrumental extraction. In our study, we did not observe fetal complications associated with fetal extraction. This could be due to our low sampling. Data literature about complications were in relation with bump sero-blood type, injuries of eye, paralysis of the brachial plexus, paralysis of the facial nerve, the depression fracture [8] [15] [16] [17] [18] [19]. Concerning maternal prognosis, we did not note injuries of the maternal genital route. Furthermore, we recorded 12 cases of hemorrhage by uterine atony into the group of labouring women who had not benefit to caesarean-section, however necessary for their management. This atony is explained by the labor dystocia or too long [6]. But, there were no maternal deaths.

5. Conclusion

The ratio of instrumental extraction remains low at the maternity of University Hospital of Cocody. We are facing with a sub equipment of fetal instrumental extraction and absence of medical staff training. Yet in the event of instrumental extraction, the fetal prognosis was better. No case of maternal death was noted. We advocate the expansion of this practice, which is part of the "Emergency Neonatal Obstetric Cares" and reduces neonatal mortality in our developing countries.

Ethical Approval

The study was approved by the Institutional Ethics Committee.

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