Current Practice of Forceps and Vacuum Deliveries by Nigerian Obstetricians

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Abstract

Obstetricians should be competent and confident in the use of both the forceps and vacuum extractor to assist vaginal delivery.

Objective: To asses the current practice of forceps and vacuum deliveries by Nigerian Obstetricians.

Methodology: A self administered questionnaire survey of 57 Obstetricians that attended the 6th International Congress of the Society of Gynaecology and Obstetrics of Nigeria (SOGON) held in Abuja in November 2002.

Results: Most (94.7%) of the Obstetricians surveyed performed these deliveries. The vacuum extractor was used by slightly more Obstetricians (81.5% compared to 79.6% using the forceps). The mean number of forceps and vacuum deliveries performed annually were 17.44 ± 16.84 and 9.30 ± 10.16 respectively. Most of the respondents believed that these instruments have a place in modern Obstetric practice with more favouring the vacuum to the forceps (89.4 % compared to 77.2%). The most common severe maternal complication experienced by them from both instruments was perineal and lower genital lacerations, while scalp injuries and cephalohaematoma were the most common severe fetal complications from forceps and vacuum deliveries respectively. Maternal and fetal mortality occurred only with the forceps.

Conclusion: Assistance with the birth process may be desirable and can be life saving and should always be available. Operative vaginal deliveries are an art that can safely and quickly deliver the fetus in skilled hands. Obstetricians should be trained in their use.

Keywords: Forceps, Vacuum, Operative, Vaginal, Delivery, Obstetricians.

Introduction

An operative vaginal delivery is an Obstetric procedure in which active measures with specialized instruments are required to accomplish the delivery of the fetus through the vaginal route and without such measures, progress and delivery will be delayed to such an extent as to be deleterious for the parturient woman or her baby or both. The instruments used are the vacuum extractor (ventouse) and forceps. Obstetricians should be competent and confident in the use of both instruments[1]. There are large differences between countries in the frequency of operative vaginal deliveries[2]. In most countries, however operative vaginal delivery rates have fallen steadily since the mid-1970's[3]. This has been as a result of most Obstetricians opting for a caesarean section, which they consider to be safer for the mother and fetus. In Canada these deliveries account for 16% of all deliveries, 11% in the USA, Belgium and Netherlands and 7% in Sweden[2]. There is a paucity of data available in Nigeria and most studies done are on forceps deliveries, which accounts for between 0.9% and 6%[4] of deliveries. The current rate for forceps deliveries in Ibadan is 1.57%[5].

The objective of this study was to assess the current practice of these deliveries in Nigeria as well as to find out if they are still relevant to modern Obstetric practice.

Methods

This study was done by means of a self-administered pre-tested questionnaire. The questionnaires were administered to Obstetricians and Gynaecologists that attended the 6th International congress of the Society of Gynaecology and Obstetrics of Nigeria (SOGON) held in Abuja, Nigeria from the 19th to 23rd of November 2002. SOGON is an affiliate of the International Federation of Gynaecology and Obstetrics (FIGO).

Questions were asked on whether they were trained to perform these types of deliveries, and if so, if they still performed them. When last they performed these deliveries, an estimate of annual frequencies as well as the most severe maternal and fetal complications of these instruments they have experienced in their practice were also sought for. They were also asked if they think these instruments are still relevant to modern Obstetric practice.

The responses were entered into the computer using the EPI INFO VERSION 2000. These responses were analysed with descriptive statistics for continuous variables and percentages for categorical variables.

Results

Eighty-nine questionnaires were administered and 59 (66.3%) were returned completed. Two of these were excluded because nurses completed them. Fifty-seven (64%) were correctly filled and these were finally analysed. The respondents practiced in 19 of the 36 states in Nigeria including the Federal Capital Territory (FCT) and their centres were located in the 6-geo-political zones of the country.

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The ages of the respondents ranged between 30 and 68 years with a mean of 42.13± 9.63 years. Fourty-nine (86%) of the Obstetricians surveyed were male. Most of them, 41 (71.9%) practiced in tertiary centres, with 9 (15.8%), 7 (12.3%) and 4 (7%) practicing in private, secondary and other centres. These 4 others included one each working for the ministry of health, a mission hospital, a non-governmental organization and a private consultancy firm. Four (7%) Obstetricians admitted to being into more than one form of medical practice. The number of years in Obstetric practice of the respondents varied between 2 and 32 years with a mean of 11.66± 7.78 years.

Fifty-four (94.7%) Obstetricians still performed instrumental vaginal deliveries with 2 doing them occasionally. The others were not doing them. Of those respondents still carrying out these deliveries, 33 (61.1%) performed both forceps and vacuum deliveries, while 10 (18.5%) and 11 (20.4%) were doing only forceps and vacuum deliveries respectively **(Table 1).** Thus slightly more Obstetricians performed vacuum deliveries (81.5% compared to 79.6%). The reasons for not performing these deliveries by the 3 Obstetricians not doing them anymore were that these instruments were not available in centres where 2 of them practiced and one not doing them because of the dangers associated with the use of these instruments. Fifty-three (92.9%) and 51 (89.4%) Obstetricians were properly trained to use the forceps and ventouse respectively **(Table 1).** Of the 43 Obstetricians that performed

Table 1: Present use and formal training in the use of forceps and vacuum among 54 Obstetricians performing them.

	Number	Percentage
INSTRUMENT USED		
Forceps and vacuum	33	61.1
Forceps only	10	18.5
Vacuum only	11	20.4
TRAINED TO USE THE FORCEPS		
Yes	53	92.9
No	2	3.5
Not properly	1	1.8
No response	1	1.8
TRAINED TO USE THE VACUUM		
Yes	51	89.4
No	3	5.3
No response	3	5.3

forceps deliveries, all (100%) were versatile with outlet deliveries, while 26 (60.4%) and 9 (21%) were versatile with low and mid cavity forceps deliveries respectively. The last time the respondents performed these instrumental deliveries varied between 1 week and 20 years, and a day and 10 years prior to the survey for forceps and vacuum deliveries respectively. The mean number of forceps deliveries performed annually was 17.44± 16.54 (range 1 to 60) and 9.30± 10.16(range 2 to 50) for vacuum deliveries.

Most of the Obstetricians surveyed believed that these instruments have a place in modern Obstetric practice with more favouring the vacuum (89.4%) compared to 77.2% for the forceps **(Table 2).**

Table 2: Relevance of the forceps and vacuum in modern Obstetric practice among 57 Obstetricians surveyed.

	NUMBER	PERCENTAGE
Relevance of forceps deliveries		
Yes	44	77.2
No	8	14
Maybe	1	1.8
Controversial	1	1.8
No response	3	5.3
Relevance of vacuum deliveries		
Yes	51	89.4
No	1	1.8
Maybe	1	1.8
Controversial	1	1.8
No response	3	5.3

The most severe maternal and fetal complications that have been observed by the respondents were similar in both instruments. The most common maternal complications **(Table 3)** were perineal and lower genital

TABLE 3: Most severe maternal complications from forceps andvacuum deliveries observed by 54 Obstetricians.

MATERNAL COMPLICATION	NUMBER	PERCENTAGE
FORCEPS		
Perineal and lower genital lacerations	45	83.3
Primary PPH	3	5.6
Infection	3	5.6
Maternal mortality	2	3.7
Ruptured uterus	2	3.7
Foot drop	1	1.9
Vesico-vaginal fistula	1	1.9
VACUUM		
Perineal and lower genital lacerations	26	48.1
Primary PPH	6	11.1
Infection	1	1.9
Ruptured uterus	1	1.9
None	14	25.9

*There were multiple responses by some Obstetricians.

lacerations, which were 83.3% and 48.1 for the forceps and vacuum deliveries respectively. Two respondents had experienced maternal mortality following uncontrollable haemorrhage after forceps delivery.

Scalp injuries were the most common fetal complication following forceps delivery and this was the second most common complication following vacuum delivery (22.2%) with scalp necrosis occurring in one baby. The most common fetal complication following vacuum delivery was cephalohaematoma (42.6%)**(Table 4).** There were 3 fetal deaths following

Table 4: Most severe fetal complications of the forceps and vacuum observed by 54 Obstetricians.

FETAL COMPLICATIONS	NUMBER	PERCENTAGE
FORCEPS		
Scalp injury	14	25.9
Facial injury	9	16.7
Intracranial haemorrhage	6	11.1
None	6	11.1
Birth asphyxia	4	7.4
Fetal death	3	5.6
Facial nerve injury	3	5.6
Fracture of the skull	3	5.6
Cephalhaematoma	2	3.7
Eye injury	2	3.7
Ankylosis of the jaw	1	1.9
VACUUM		
Cephalohaematoma	23	42.6
Scalp injury	12	22.2
None	8	14.8
Chignon	5	9.3
Eye injury	3	5.6
Jaundice	3	5.6
Fracture of the skull	1	1.9
Tentorial tear	1	1.9
Intracranial haemorrhage	1	1.9

*There were multiple responses by some Obstetricians.

Forceps deliveries. One of them was an immediate neonatal death, while the others were early neonatal deaths. There was no maternal or fetal mortality following vacuum deliveries.

Discussion

We had earlier contemplated to conduct this survey via a postal survey but this was not done because of the inefficient postal services in Nigeria. The SOGON conference, which is held annually, is a forum where Obstetricians and Gynaecologists all over Nigeria come together and share experiences. We therefore decided to use this opportunity to conduct this study. To our knowledge this is the first of its kind on this subject in Nigeria.

One of the limitations of this study was that only a portion of Obstetricians practing in Nigeria were sampled and they were self-selected and included those that attended an update course and a conference and they may represent Obstetricians that chose to update their knowledge on issues in our practice. Another limitation was that the respondents were few compared to the number of Obstetricians practicing in Nigeria, but those surveyed practiced in 19 of the 36states in Nigeria including the Federal Capital Territory (FCT) and represented all the six-geo-political zones of the country. The survey sample therefore may appear representative of the country.

The use of instruments to assist vaginal delivery has always been controversial[6]. This study was carried out to assess the current practice of these deliveries in our country. Obstetricians should be competent and confident in the use of the forceps and ventouse[1]. This highly skilled art has been described as a 'lost art'[6] or a 'dying art'. This is so as a result of a difficult legal climate in countries such as the USA concerning birth injury where allegations of malpractice are often driven by maloccurence, regardless of cause[6]. This has resulted in a rapid increase in the number of caesarean sections[7] and a reduction in the number of Obstetricians doing or trained to perform these arts. Caesarean sections, the popular American response to possible difficult delivery, have not proven to be an entirely successful nor universally satisfactory remedy[6]. From our survey, most of the respondents (94.7%) performed these deliveries and most were trained to do them.

Debate about the choice of instruments has distracted attention from dramatic variations in the overal rates of instrumental deliveries.[8] Surveys from the UK and USA suggest that the vacuum is becoming more popular thus confirming a move away from the forceps to vacuum [9]. From our survey more Obstetricians performed vacuum deliveries (81.5%) compared to forceps deliveries (79.6%). The average number of these deliveries conducted annually was encouraging and this could be translated to Obstetricians being skilled in this art and also a reduction in the number of patients that would had otherwise required a caesarean section to deliver their babies. This also has its financial implications on the patients in that hospital bills are reduced by eventually not undergoing a caesarean section as in our environment the patients bear the cost of their hospital care, and also an abdominal scar is avoided which in our culture, women are happy to do so and is also more acceptable to them.

Most respondents believe that instrumental deliveries are relevant to modern Obstetric practice. These deliveries have never been without critics and are not without risks [6]. There are several important issues to consider in modern Obstetric practice, even extensive reliance on abdominal delivery has not resulted in a disappearance of maternal and fetal trauma [6].

Vacuum and forceps deliveries can be associated with significant complications, both maternal and fetal [9]. Against this record of risk must be weighed the enormous clinical experience of a successful atraumatic delivery with a reduction in maternal and fetal distress using these instuments[6]. Information derived from

several studies on instrumentally delivered infants is generally reassuring[6].

On the basis of the findings that the vacuum extractor is less likely to injure the mother than the fetus, it has been stated that it 'is the instrument of first choice for operative delivery'[10]. This has been supported by various studies.

From our survey, severe complications have been observed with the use of these instruments. Maternal mortality from uncontrollable haemorrhage, and rupture of the uterus were the worst maternal complications reported by those surveyed. Various forms of fetal injury as well as fetal death were also experienced. Maternal and fetal mortality however occurred only with the use of forceps. This may illustrate the relative safety of the ventouse compared to the forceps. This survey therefore supports some others to show that the vacuum results in a decreased risk and severity of trauma to both mother and fetus [11].

Generally, all clinicians agree that injuries to mother and rarely to the fetus are possible with a complicated or poorly conducted instrumental delivery[6]. Only adequately trained and supervised practitioners should undertake these deliveries[9].

Conclusion

Assistance with the birth process with the forceps or ventouse may be desirable and can be life saving and should always be available. They can be offered in the place of a caesarean section in some instances with good maternal and fetal outcome in skilled hands.
Instrumental vaginal deliveries have been an important part of Obstetric history and practice and should not be forgotten. While we continue to perform these deliveries when indicated, we must also as Obstetricians accept the responsibility for the proper tutoring of new clinicians in the appropriate use of these skilled Obstetric operative techniques so as to reduce their complications.

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