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Causes and Consequences of Late Arrival in Labour

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Abstract

Background: *The outcome of labour depends to a large extent on the quality of intrapartum care given. Prompt arrival in hospital is essential for optimal care of parturient women. The causes and consequences of late arrival in labour have not been analysed in our setting.*
Objective: *To determine the causes and consequences of late arrival in hospital during labour.*
Study Design and Setting: *A case-control study in a university teaching hospital.*
Methods: *Data was collected from patients who delivered vaginally immediately after arrival in the labour ward (Subjects: N=150) and the next two consecutive patients who presented early in labour (cervical dilatation of 3-5cm) and had vaginal delivery (Controls: N=300)*
Outcome Measures: *Maternal complications such as perineal tears, frequency of episiotomy, blood loss and duration of stay in hospital. Apgar scores at 1 and 5 minutes, and neonatal hospital admission.*
Results: *Late arrival to the labour ward was significantly associated with high parity, low educational status, poor antenatal attendance and increased peripartum blood loss. However, early arrival was associated with a higher risk of having an episiotomy (Relative Risk: 2.5). The neonatal outcome was similar in both groups of patients.*
Conclusion: *High parity, low educational status and poor utilization of antenatal facility are risk factors for late arrival in hospital during labour. Late presentation was associated with increased blood loss at delivery.*

Key Words: Labour, Late Presentation, Pregnancy Outcome. [Trop J Obstet Gynaecol, 2001, 18: 52-55]

Introduction

The aim of maternity care is to ensure the delivery of a healthy baby to a healthy mother. Intrapartum care is integral to the attainment of this goal and this has been greatly enhanced by the use of electronic devices in developed countries and some centres in developing countries with such facilities. Intermittent auscultation with Pinard's stethoscope or sonicaid in combination with the use of the partograph has also produced satisfactory results in many developing countries.

The outcome of labour to a large extent depends on the quality of intrapartum care given [1,2]. For instance, in situations of unplanned home deliveries without professional care, perinatal deaths were 10 to 50 times higher than planned home deliveries supervised by professionals.[1, 3] The importance of intrapartum care was also highlighted by the reports of Wildschutt *et al*[4] and Niswander *et al* [5] who reported increased mortality from birth asphyxia and worse neonatal morbidity when intrapartum care was less than adequate. In our environment it is common to see patients arrive in the labour ward near the end of the first stage or during the second stage of labour ("head-on-perineum"). Such patients have obviously not had real intrapartum care. Similar situations exist in other developing countries [6].

There are several reasons why a patient may arrive late to the hospital in labour. The study by Nkyekyer[6] at Korle Bu in Accra, Ghana identified fast labour and transportation difficulty as major contributors to late arrival into the Labour Ward. In that study, there was no significant difference in neonatal outcome between the study group and a control group of patients who presented early to the Labour Ward. There has been no similar evaluation of this group of patients in our environment. Yet everyday we are faced with the challenges of rendering emergency services to patients presenting head-on-perineum. This study was designed to determine the causes and consequences of patients arriving late to the hospital labour ward when they are in labour.

Materials and Methods

A case-control study was carried out at the University of Benin Teaching Hospital [UBTH], Benin City, Edo State, Nigeria, from 1st of February 2000 to 31st January 2001. The hospital is one of the largest in the city and the Obstetric Unit conducts about 2,500 deliveries annually. Patients with uncomplicated pregnancies and deliveries are discharged within 4 days of delivery.

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The subjects were patients with singleton pregnancies having cephalic presentation at term that delivered vaginally at the time of arrival in the labour ward during the period between 1st February 2000 and 31st January 2001. The controls for each subject consisted of the next two patients who arrived in the Labour Ward in the active phase Labour but had cervical dilatation of 3-5cm and whose labour ended in spontaneous vaginal delivery. This range of cervical dilatation was chosen to ensure that the controls were not so advanced in the active phase labour as to be close to 2nd stage of labour. Patients referred from other clinics or hospitals with head on perineum were excluded from the study group. Patients with antenatal fetal death were excluded from both groups.

The subjects and controls were interviewed within 48 hours of delivery. Information about their level of education and that of their spouse, their perception of labour before leaving home, means of transportation and any difficulty obtaining it, was obtained by interview. Other information such as their age, parity, booking status, and number of antenatal clinic visits was obtained from their case notes. Also retrieved from their case notes were details of delivery and neonatal outcome. Some of the information gathered from the case notes was confirmed during the interview.

Data analysis was done with Microsoft Excel 97 programme. The results are expressed as mean ± standard deviation. The Student's t- and the chi-squared tests were used, as appropriate, to test the level of significance in the differences observed between the two groups. [A p-value of < 0.05 was taken as significant].

Results

There were 150 subjects and 300 controls. Table 1 shows the demographic and booking characteristics of the subjects and controls. The two groups were similar in age. There was however a statistically significant difference in their educational status as late arrival in labour was more commonly associated with women of low educational status. The subjects were also of a significantly higher mean parity than the controls. There were more unbooked patients among the subjects: 22%, compared with controls: 8% [$p < 0.005$]. Among the booked patients, mean booking time was earlier in the controls [23.11 ± 8.21wks] than in the subjects [25.74 ± 6.01wks; $p < 0.05$]. Also the mean number of antenatal visits was higher in the controls [7.16 ± 3] than in the subjects [6.03 ± 2.9; $p < 0.05$].

Reasons for Late Presentation (Table 2)

As many as 75 subjects (50%) did not come early in labour for fear of hospital expenses and of intervention if they stayed long in the Labour Ward. Forty-two patients (about 28%) blamed transportation problems as the cause of their delay. Twelve patients (8%) did not come early because their husbands were not at home. Six patients (4%) failed to recognize early symptoms of Labour. Three Patients (2%) did not come early because it was night while another 3 (2%) did not want hospital delivery initially.

Table 1

Demographic Characteristics

Parameters	Subjects *N = 150*	Controls *N = 300*	*p* Value
Age (years) (Mean ± SD)	29.86 (± 7.3)	29.48 (± 6.2)	NS
Parity			
(Mean ± SD)	2.18 (± 0.21)	1.51 (± 0.32)	$p < 0.05$
0	39 (26%)	105 (35%)	
1 – 4	90 (60%)	171 (57%)	$p < 0.01$
5 or more	21 (14%)	18 (6%)	
Educational Status			
Patient			
1°	30 (20%)	30 (10%)	$x^2 = 11.09$
2°	57 (38%)	105 (35%)	$df = 2$
3°	63 (42%)	165 (55%)	$p < 0.01$.
Husband			
1°	24 (16%)	27 (92%)	$x^2 = 19.90$
2°	63 (42%)	81 (27%)	$df = 2$
3°	63 (42%)	192 (64%)	$p < 0.01$
Booking Status in UBTH			
Booked	117 (78%)	276 (92%)	$x^2 = 17.72$;
Unbooked	33 (22%)	24 (8%)	$df = 1$; $p < 0.005$
Gestational Age at Booking (weeks)	25.74 (± 6.07)	23.11 (± 8.21)	$p < 0.05$
No. of ANC Visits	6. 03 (± 2.9)	7.16 (± 3.0)	$p < 0.05$

NS = *Not significant*

Table 2

Reasons for Late Presentation

Reasons	Frequency
Did not want to come early for fear of expenses/intervention	75 (50%)
Transportation problems	42 (28%)
Husband not at home	12 (8%)
Failed to recognise labour	6 (4%)
Night time	3 (2%)
Did not want hospital delivery initially	3 (2%)

Maternal Outcome and Complications (Table 3)
Episiotomy was more frequent in the controls than in the subjects [37.7% vs 15.3%; Relative Risk: 2.5.]. The incidence of perineal tear was similar in both groups [16.6% and 17.3%]. The mean blood loss was significantly more in the subjects than controls [228mls ±178.8 vs 181 mls ±130.3; $p < 0.01$]. Twice as many women lost between 500 – 1000 mls of blood in the subjects compared to the controls [8% vs 4%]. This was however not statistically significant. ($p < 0.05$). There was no statistical difference in the mean duration of stay in the hospital between subjects and controls.

Table 3

Maternal Outcome / Complications

Parameters	Subjects *N = 150*	Controls *N = 300*	*p* Value
Blood Loss			
Mean (mls)	228 ± 178.8	181.1 ± 130.3	$p < 0.01$
< 500mls	138 (92%)	288 (96%)	
500-1000mls	12 (8%)	12 (4%)	
Episiotomy	23 (15.3%)	113 (37.7%)	$p < 0.05$
Perineal Tear	26 (17.3%)	50 (16.6%)	NS
Hospital Stay [Days (mean ± sd)]	3.45 (± 2.93)	4.04 (± 3.3)	NS

NS = *Not significant*

Perinatal Outcome (Table 4)
There was no statistically significant difference in birth weight between subjects and controls [3069gms ± 215 vs. 3140gms ± 180; $p > 0.05$]. The mean Apgar Scores at one and five minutes were also similar in both the subjects and the controls [7.6 ±1.25 vs 7.62 ± 1.25 and 9.72 ± 0.83 vs 9.75 ± 0.63]. The frequencies of moderate and severe birth asphyxia were similar in both subjects and controls [8% and 7% respectively]. However, the need for special care baby unit (SCBU) admission on account of neonatal sepsis (NNS) was twice as frequent in the subjects compared to the controls. The mean duration of stay in SCBU was similar in both subjects and controls [8.48 days ± 2.2 vs 6.2 days ± 2.5; $p > 0.5$]. There was no neonatal death in both groups.

Discussion

Late arrival to the labour ward is a common phenomenon in developing countries. During the period of this study (12 months), late arrival accounted for 7.9% of all patients who delivered in UBTH. This is similar to 10.7% reported from Ghana in 1998 [6]. The two groups of patients studied were similar in age but the study group had a higher mean parity. Porter *et al* [7] reported similar findings. There were twice as many grandmultiparous patients in the study group compared to the control group. This is a reflection of the general attitude of the multiparous patients who believe they are experienced and, so, can take their time before presenting to the hospital when in labour. The booking status of the patients may also have an influence on the time of presentation. This study showed that significantly more patients in the control group booked for antenatal care in UBTH. They (controls) also booked at an earlier gestational age and had more antenatal visits than the subjects. Poor antenatal attendance may therefore prognosticate late arrival in labour.

Table 4

Perinatal Outcome

Parameters	Subjects *N = 150*	Controls *N = 300*	*p* Value
Weight [gms]	3069 (215)	3140 (180)	NS
Apgar Score			
1 minute	7.6 ± 1.25	7. 62 (± 1.25)	NS
5 minutes	9.72 ± 0.83	9.75 (± 0.63)	NS
Mild Asphyxia	3 (2%)	3 (1%)	NS
Moderate/Severe Asphyxia	12 (8%)	21 (7%)	NS
SCBU Admissions	30 (20%)	54 (18%)	NS
Indications			
Neonatal Jaundice	6 (4%)	21 (7%)	NS
Neonatal Sepsis	12 (8%)	12 (4%)	NS
Asphyxia	12 (8%)	21 (7%)	NS
Duration	8.5 ± 2.2	6.2 ± 2.5	NS

NS = *Not Significant*

Previous authors identified problems with transportation and fast labour as major reasons for arriving late to the hospital.[2, 6, 8]. This study also found that transportation difficulty is a cause of delay in reaching the hospital. However, our analysis did not focus on rapid labour as a cause because any attempt at estimating labour duration in such a group of patients would have relied on the patients' accounts and their ability to recall events and time, which are not scientifically reliable [9]. In any case fast labour did not appear to feature significantly in this study as only 6 patients (4%) claimed they did not recognise symptoms of labour onset. As many as 75 women (50%) did not want to come early for fear of intervention and increase in expenses. This attitude is borne out of their ignorance of the need for astute intrapartum monitoring to forestall intrapartum complications, which may affect labour outcome.

Considering that 78% of the study group patients were booked, one wonders whether the antenatal health talks delivered to them had the desired impact. Emphasis on the contents and benefits of intrapartum care during antenatal health education is therefore desirable.

With respect to maternal complications, this study showed that late arrival to the labour ward is a risk factor for increased blood loss at delivery. The mean blood loss and frequency of post–partum hemorrhage was higher in the subjects than in the controls. Similar to what had been previously reported [6,10], the risk of having an episiotomy was higher in the control group. There thus appears to be a relationship between frequency of episiotomy and time spent in labour ward.

The perinatal outcome did not differ significantly in the study and control groups of this study. The frequency of moderate and severe birth asphyxia, SCBU admission and duration of stay in SCBU were similar in both groups. This finding is similar to that of Nkyekyer [6] but contrasts with other previous reports [2, 3]. The good fetal outcome is probably attributable to the skills of the attendants that conducted the 2nd stage of labour, coupled with the facilities available to meet such challenges at short notice. This finding should however not recommend or support late presentation as a norm. The situation may be different for women cared for by less qualified and less experienced personnel in less equipped places. Certainly the situation will be different for potential late presenters who delivered before arriving in hospital, in awkward places like inside cars, bus stops or even at home.

In conclusion, this study has identified high parity, low education, transportation problems and possibly ignorance as causes of arriving late to the labour ward. Whereas late arrival is shown here as a risk factor for increased maternal blood loss at delivery, early arrival in labour ward increases the risk of having an episiotomy.
The perinatal outcome is similar in women arriving early or late, but late presentation to the labour ward should not be encouraged on this premise as many potential late presenters may not make it to the hospital in good enough time for expert care.

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