

# Operative Intervention during Intrapartum Fetal Monitoring: A review of Influencing Factors and Outcome

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## Summary

In an audit of electronic fetal monitoring during labour from Jan. 2000 – June 2000 we analyzed 51 cases subjected to operative intervention. During that period there were a total of 1200 deliveries at our institution. The caesarean section rate was approximately 13.3% that of forceps delivery 1.8% & of vacuum deliveries 1.1%. We also reviewed influencing factors and perinatal outcome. Forty four of 51 cases (88%) were delivered by caesarean section. There were 3 cases of perinatal mortality.

## Introduction

Electronic intrapartum fetal monitoring began as common clinical practice around 1970. Questions about the reasons, rate and effectiveness of operative intervention have often arisen since then. In Yale University the caesarean section rate for fetal distress declined in comparison with earlier years after fetal monitoring (Paul 1972).

## Material and Methods

This study was conducted from Jan. 2000 – June 2000 as part of an ongoing perinatal audit of electronic fetal monitoring at the B.Y.L. Nair Charitable Hospital and T.N. Medical College, Mumbai. During the period of this study, the total number of deliveries were 1200. Continuous CTG monitoring was done for all high risk cases in labour. The caesarean section rate during that period was 13.3%, that of forceps & vacuum being 1.8% & 1.1% respectively. The perinatal mortality rate was 44/1000. Table I shows that intervention in 88% (44 of

51) of cases was by caesarean section. Three cases were delivered by outlet forceps and 3 by vacuum extraction. Forceps was applied for prolonged second stage of labour in all 3 cases. In one of these cases there were variable decelerations, and 2 tight loops of cord around the neck seemed to be the reason for this. All cases had apgar scores of 8,9,9 with clear liquor. There was one perinatal mortality in one case of failed vacuum delivery where normal delivery later occurred in the presence of thick meconium aspiration, 2 tight loops of cord around the neck and an apgar score of 1, 3 and 4.

**Table I: Interventions**

Caesarean section	44
Forceps	03
Vacuum	03
Failed vacuum	01
Total	51

As Table II shows 35 of 44 caesarean sections were necessitated by persistent late decelerations. In one such persistent late deceleration there was

accompanying sudden fetal tachycardia (200bpm), abruption was suspected and caesarean section was performed. The fetus was stillborn. In one case of spontaneous deceleration, there was thick meconium staining with meconium below the cord and an appgar of 6, 8, 9. Fifteen of 35 cases of late decelerations showed clear liquor at birth (Table III). Sudden placental abruption resulted in one stillbirth from amongst these cases despite caesarean section being performed. In 10 cases of thick meconium staining one perinatal mortality resulted with an appgar of 1, 3, 4. Two cases had appgar scores of 4, 8, 8 and 6, 8, 9. Six cases had meconium aspiration and required resuscitation.

**Table II: Reasons for C. Section**

Late decelerations	35
Poor variability	02
Tachycardia	01
Spontaneous deceleration	01
Nonprogress of labour	03
Scar tenderness	02

From table IV it is seen that 10 cases had 1 or more loops of cord around the neck. One of these resulted in a perinatal mortality. Eight of these cases were delivered by caesarean section. In five of these cases there was reduced variability (<10 bpm).

**Table III: Meconium in Liquor**

Late decelerations	Liquor			
	Clear	Thin	Moderate	Thick
35	15	05	05	10

**Table IV: Apgar Score and Liquor**

Reduced Variability	Late Deceleration	Apgar			Liquor	Cord Loops	Inter-Vention
+	+	6	8	9	MO	1L	1SCS
+	-	8	9	9	MO	1T	1SCS
-	-	8	9	9	CL	2T	FORCEPS
-	+	1	3	4	CL	2T	Failed Vacuum
+	+	8	9	9	CL	1T	1SCS
+	-	8	9	9	TH	3T	1SCS
-	+	8	9	9	CL	2T	1SCS
-	+	8	9	9	CL	1T	1SCS
-	-	8	9	9	CL	1T	1SCS
-	+	8	9	9	TN	1T	1SCS

- Legends  
 T-Tight I oop  
 CL-Clear Liquor  
 TN Thin Meconium  
 L-Loose loop  
 Mo-Moderate Meconium  
 TH-Thick meconium

**Discussion**

A clear endpoint in perinatal audit is fetal death, intrapartum or perinatal. Of 51 cases of intervention 3 resulted in perinatal mortality. One of these was due to sudden placental abruption. This sudden catastrophe could result in fetal death within 15 mins of a normal CTG (Donald and Arul Kumaran 1992). In tertiary public hospital settings one of the variables that could cause a seemingly high perinatal death rate could be the acceptance of unregistered cases for delivery in various stages of labour. Intervention after fetal monitoring in labour in many such cases could possibly reduce the otherwise even greater perinatal mortality.

**References**

1. Donald Gibb, Arul Kumaran; Fetal monitoring in practice, 2<sup>nd</sup> ed 1992, pp 12, Butterworth Heinemann.
2. Paul RH. Clinical fetal monitoring: Experience on a large clinical service. American Journal of Obstetrics and Gynaecology 113: 573, 1972.