

# Perinatal and Maternal Outcome Associated With Induction of Labour

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## ABSTRACT

**Objective:** To describe the maternal risk factors and maternal and perinatal outcome associated with labour induction.

**Design:** A cross-sectional study

**Setting:** Gynae unit III SGRH, Lahore, from July 2007- June 2010, a three years study.

**Patients and methods:** All patients admitted for labour induction through outpatient department as well as emergency were included in the study.

**Main outcome measures:** Indication for induction of labour, method of induction, risk factors for induction, success rate of each method and maternal and perinatal outcomes.

**Results:** 5727 patients were admitted for induction of labour during the study period. The indications of labour induction were premature rupture of membranes (OR 3.29, 95% CI, 2.90, 3.73) prolonged pregnancy (OR 4.15, 95% CI 3.82, 4.50) IUGR, congenital anomaly or intrauterine deaths. The success rate of vaginal delivery was comparable for oxytocin and misoprostol with an overall success rate of 71.5% and C-section rate of 28.5%. Induction of labour was more common in women over 35 years of age OR 1.37, 95% CI 1.14, 1.65. Maternal complications included increase need for uterotonic agents, instrumental delivery, higher rate of c-section, hysterectomy, ICU admission, hospital stay of >7 days and increased need for consultant obstetricians and anesthetists. The adverse perinatal outcomes included low 5 minute Apgar score, low birth weight (RR; 0.9; 95% CI: 0.8-1.1) admission to neonatal ICU, and delayed initiation of breast feeding and perinatal deaths (RR; 0.8; 95% CI: 0.6-1.2).

**Conclusions:** The prevalence of labour induction was 12.5% with a success rate of 71.5%, irrespective of the method used. The most frequent indication was premature rupture of membranes. Induced labour is associated with poor maternal and perinatal outcome.

**Key words:** Induction of labour, Complications of pregnancy, method of induction, mode of delivery.

## INTRODUCTION

Rising rates of obstetric interventions globally are a concern for healthcare providers and the public. Our aims were to identify the socio-demographic and clinical factors predictive of the most common obstetric interventions of induction of labour and quantify the extent to which observed rates can be explained by case mix factors. This is a part of ongoing study comparing IOL in PPRM patients with expectant management.

## METHODS

5727 Patients were admitted through OPD and Emergency department for labour induction due to various indications including preterm prelabour rupture of membranes as outlined in table 2. A detailed history table 1 and any drug allergies were inquired of. A physical examination of the patient was carried out and baseline investigations were carried out. A pelvic examination was carried out and Bishop scoring was done. The women and her partner were

counselled for labour induction and a formal consent form was signed. The decision to induce was taken after a reassuring CTG and oxytocin or misoprostol was used for labour induction depending upon the Bishop score and other circumstances. The progress of labour was plotted on partogram and fetal monitoring was done by electronic heart monitors. Induction delivery time was plotted on partogram and labour was suspended in favour of c-section on early signs of fetal distress.

## RESULTS

Table 1: Description of demographic characteristics (n=5727)

Maternal age in years	29.9 (4.43)
Gravity	3.28(2.07)
Previous preterm delivery	687
Previous c-section	29
No. of living children	3 (0-2)

Table 2: Indication for induction (n=5727)

PROM/PPROM	3321(58%)
Preclampsia	570(10%)
IUGR	286(5%)
Congenital anomaly	114(2%)
Intrauterine death	229(3.9%)

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Table 3: Maternal complications following induction (n=5727)

PPH	1489(26%)
Uterotonic use > 24 hours	4524(79%)
ICU admission	4753( 83% )
Hospital stay > 7days	1145 (20%)
Instrumental delivery	687(12%)
C-section	1632(29.5%)
Hysterectomy	143(2.5%)

Table 4: Fetal outcome following induction

Apgar score < 5	3149(55%)
Low birth weight	1317(23%)
Admission to ICU	2748(48%)
RDS gest age < 37 wks	1947(34%)
Injuries due to instrumental delivery	01
Perinatal death	01

## DISCUSSION

Labour induction is one of the most frequent medical procedures in pregnant women. It is a major intervention in the normal course of pregnancy, with the potential to set in motion a cascade of interventions, particularly C-section. It is important for health workers to approach the question of labour induction with sensitivity, and to involve women in the decision-making process<sup>2</sup>.

The prevalence of labour induction in our study is 12.5% (total admissions 45816, total inductions 5727) which is lower than that reported in developing countries which is around 20%<sup>1,4,5</sup>. This low prevalence may be because the study was carried out in a tertiary care hospital where facilities for intensive monitoring of labour and supervision of trained staff is available for 24 hours and expectant management is the unit protocol. Also, there is a low threshold for c-section the rate in this study being 28.5%. Finland has a c-section rate of only 7.1%<sup>3</sup>.

In this study the commonest indication for labour induction was premature rupture of membranes followed by pre-eclampsia as these conditions are very common in developing countries. In France, the most common indication for labour induction is postdate pregnancy followed by preterm rupture of membranes<sup>5</sup>.

The predominant use of oxytocin for labour induction in our study is due to low price easy availability and the high indication rate of PROM which makes cervix more favourable for induction with this drug. However misoprostol was the choice of drug for IOL as units protocol especially in cases of pre-eclampsia<sup>6,7</sup>. The decision whether to induce with oxytocin or misoprostol was based on availability and preference of unit, and preference of the mother.

The success rate for vaginal delivery was 71.5% which is comparable to international standards<sup>8,9</sup>. There is a high c-section rate of 28.5%. Nulliparous and women aged 35 or more were induced with a low threshold for c-section.

The results of present study show that induction of labour is associated with with higher rates of complications in mother including ICU admission, prolonged hospital stay , higher rate of instrumental delivery and hysterectomy when compared to women with spontaneous onset of labour<sup>10,11</sup>. These risks remained even after adjustment for a number of factors associated with the underlying condition that resulted in the need for IOL.

In this study IOL was associated with lower apgar score at 5 minutes<sup>11</sup> even after intensive fetal monitoring and use of electronic fetal monitors. This is in contrast to studies conducted in settings where very low birthweight infants are monitored in advanced neonatal intensive care units. Perinatal outcome strictly depends on standard of care available but majority of studies report poor perinatal outcome for induced labour.

## CONCLUSION

The success rate of vaginal delivery is quite high with no measurable difference between the different methods of induction. Maternal complications are higher with induced labour when compared to labours which start spontaneously. The perinatal outcome can be improved by admission or transfer to neonatal units providing standard care.

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