

Indications for Induction of Labour : (as in Common Practice)

Hayat T.

Address for Correspondence: Assistant Professor (Gynae), Sargodha Medical College, University of Sargodha

Home Address: 297-A, Satellite Town, Sargodha

Background: Rates of labour induction are increasing.

Objective: To make a list of common indications of induction.

Design: Prospective observational study.

Setting: Gynecology unit of D.H.Q teaching hospital, Sargodha for a period of 1 year from March 2008 – March 2009.

Patients and Methods: Patients admitted in the labour room through emergency or through OPD who were planned to have induction of labour, were included in the observation. Their age, parity, duration of pregnancy and the particular condition for which she was induced labour, was recorded. All essential points of examination and required investigations for the mother and the foetus were recorded.

Outcome: At the end of induction in the form of mode of delivery was recorded whether spontaneous, instrumental or operative delivery.

Results: Out of 400 patients 158 were primi gravidas and rest of 242 were G₂ to G₉. 342 had alive foetuses and 58 had I.U.F.D. (Intra uterine foetal death). Duration of pregnancy ranged from 28 to 41 wks. Indications for induction of labour were prolonged pregnancy, (36). Pre-eclampsia, (46) I.U.G.R. (16). Placental abruption (32) PROM (20) foetal anomalies (20), I.U.F.D (58), gestational diabetes (10) and non-medical indications (108). Spontaneous vaginal deliveries (242) Instrumental deliveries (60) and C - sections – (98).

Conclusion: The most common was non-medical indications for induction of labour.

Key Words: Indications. Induction of labour.

Introductions

In contemporary medical practice, labour might be induced for several indications ranging from life saving to trivial¹. Rate of labour induction has steadily increased since 1980s. Induction currently occurs for 24% of infants born between 37 and 41 weeks of gestation in the U.S.A.² In a large united states survey involving 1573 women with singleton gestations, 41% of responders reported undergoing attempted medical induction of labour.³

Induction may be advocated to reduce foetal or neonatal morbidity and mortality as with post term pregnancy, oligohydramnios, suspected intra uterine growth restriction (I.U.G.R) or foetal anomalies. Labour may be induced to lower maternal morbidity as with maternal cardiac disease and pre eclampsia or it can be to benefit both mother and the foetus as in pre labour rupture of membranes (PROM) and in foetal macrosomia. Elective induction for non medial indication is also widely practiced and is considered ethically and medically acceptable.⁴

In properly selected cases, labour induction is safe and effective while being more convenient than waiting for spontaneous onset of labour because of its predetermined timing.⁵ The goal of this review is to summarise the indications of induction of labour as practiced in a tertiary referral hospital.

Subjects and Methods

The study was carried out in D.H.Q. teaching hospital Sargodha from April 2008 to April 2009 in a period of 1 year. A total of 400 women with 28 to 41 completed weeks of pregnancy were included in this review. The inclusion is independent of the patient's gravidity and parity and the source of admission to labour room is both from out patients department and through emergency. Thorough review of antenatal cards and detailed history was obtained. Clinical evaluation and routine laboratory investigations including screening for Hepatitis B and C was checked. Detailed sonographic examination to document foetal position estimated foetal weight and biophysical profile were carried out and a clear cut indication for induction of labour was determined and labeled. The cases who could benefit from elective caesarean section were excluded. Cases of intra uterine foetal death were also included.

Induction of labour was carried out by routine methods available, like prostaglandins and syntocinon according to the patient's bishop score of the cervix.

Outcome was recorded in the form of end result like vaginal delivery and caesarean section.

Results

Out of 400 patients 244 were admitted through O.P.D. and

rest of 176 patients came through emergency.

Their age range was from 22 – 40 years, They varied from primigravida to gravid 9 (Table 1). Duration of pregnancy ranged from 28 to 41 weeks including those who had I.U.F.D. 242 women had alive fetuses on admission and 58 were admitted for delivery of intra uterine foetal death.

Table 1: Variables of the study group.

Variables	Range
Age	22 – 40 yrs
Parity	G ₁ – G ₉
Duration of pregnancy	28 – 41 wks
37 – 41 wks	246
34 – 37 wks	100
30 – 34 wks	28
28 – 30 wks	26
Alive foets	I.U.F.D
242	58

The main indications recorded in this study along with the number of patients are given in table 2.

Table 2: Indications for induction of labour n = 400.

Indications	No. of Patients	% age
Prolonged pregnancy	36	9%
PIH, pre-eclampsia	46	11.5%
Eclampsia	26	6.5%
Placental abruption	32	8%
PROM at term	20	5%
Foetal anomalies and Polyhydramnios	20	5%
I.U.G.R with sever Pre-eclampsia	16	4%
I.U.F.D	58	14.5%
Gestational diabetes	10	2.5%
Maternal cardiac disease	06	1.5%
Pre-term, pre-labour rupture of membranes	22	5.5%
Non medical indication	108	27%

Prolonged pregnancy was considered to be post date pregnancy of more than 40 weeks and women who were attending antenatal clinic or came from outside were admitted for induction. Our regular patients were not allowed to pass beyond 41 weeks.

This way 36 patients were admitted and delivered vaginally or by caesarean with a healthy neonatal outcome.

Pregnancy induced hypertension or pre-eclampsia with and without I.U.G.R were induced any time after 35 weeks depending upon their blood pressure control and biophysical profile.

Eclampsia was most commonly found in primigravidas and decision of induction was based on the favorability of the cervix and the pelvis and also the presence or absence of complications whether they allow time to reach delivery.

Eclampsia before 30–32 weeks where viability of the foetus was in doubt, was also listed for induction.

Labour was Induced in all cases of A.P.H where placenta previa was ruled out by an authentic ultrasound report and patients' general condition was well enough to pass through labour without compromise in blood pressure.

Foetal anomalies especially anencephaly and hydrocephalous were admitted for induction as soon as they were diagnosed.

Intra uterine foetal deaths were induced and all 58 were delivered with in 24 hrs of admission.

Most of the cases of gestational diabetes were dealt with expectant management, only those patients were induced who were beyond 38 weeks and were already in the ward for control of blood sugar and were desperate to go home.

The most common indication found was non medical i.e induction for convenience. These were the patients who came to O.P.D for antenatal checkup. They were not in labour but they were at around 39 or 40 weeks of pregnancy and it was not possible for them to reach the hospital when in labour at odd hours due to transport problem.

In addition those patients who got admitted to labour room through emergency with complaints of false labour. They were kept under supervision during the night and on the next morning on round, they were scrutinized fully to assure their duration of pregnancy at term, favorability of their cervix and pelvis or any other risk factor. Induction of labour was planned for them instead of sending them home without delivery and after successful induction, they were conveniently discharged.

We had 242 spontaneous vaginal deliveries and 60 patients had instrumental delivery (ventouse and outlet forceps). 98 patients had caesarean sections (Figure 1).

All cases of caesarean sections were either due to fetal distress or due to failed or delayed progress.

Discussion

Our strategy of induction of labour in prolonged pregnancy at 41 completed weeks is supported by a meta analysis in 2002⁶ where it was compared to expectant management.

Expectant management was usually defined as antenatal testing (Bio chemical, Foetal heart rate monitoring and amniotic fluid assessment) followed by induction of labour at 42, 43 and 44 weeks if these patients fail to go into spontaneous labour.⁷

We did not go beyond 41 weeks as we do not have full facilities of biochemical tests and amniotic fluid monitoring of the foetus during these extra 2 – 3 weeks. The induction of labour at 41 weeks or beyond term to improve the birth outcome is also supported by Cochrane review.⁸

We induced 36 patients for prolonged pregnancy. 14 had C-sections for different reasons and 22 were delivered vaginally with no adverse foetal outcome except a few had meconium staining of liquor and lower apgar score at birth.

For eclampsia and pre-eclampsia there are many case series in the literature comparing induction of labour with caesarean section. Most of these series found no evidence of maternal, foetal or neonatal harms when induction of labour was carried out.⁹⁻¹⁰

In our study, cases of severe pre-eclampsia with I.U.G.R who by gestational age were beyond 28 weeks but were very small for dates, did not survive. But these were the cases who would not have survived even if delivered by caesarean and moreover, to give surgical trauma to the mother and to scar her uterus would have been injustice to her.

The cases of pre-eclampsia and eclampsia where baby was expected to survive by estimated birth weight and who had oligohydramnios were not included in the study as they were at risk for stress of labour. Another author found exposure to labour to be beneficial in reducing neonatal pulmonary morbidity in such cases.¹¹

In cases of PROM (at term) in the literature, there are 2 recommendations: Expedited induction, defined as commencing between 2 and 12 hours after rupture of membranes.¹² Conservative or expectant management defined as observation from 24 hours to 4 days after rupture of membranes followed by induction if spontaneous labour does not result.¹³ We managed our cases by expedited induction i.e., as soon as they were received in the labour ward, as we are not sure of our state of a sepsis. We had almost no morbidity in the form of chorioamnionitis or post partum endometritis, possibly with this policy of expedited induction with proper use of antibiotics as well. The similar results are reported by Dare et al with expedited management. They also reported increased maternal satisfaction with induction of labour compared with expectant management.¹⁴

In cases of preterm, prelabour rupture of membranes, we delayed induction of labour for about 12 hours and gave 2 doses of dexamethasone (12.5 mg) at 12 hourly interval along with antibiotics. This decision was prompted by a study by Lewis et al that although corticosteroids may

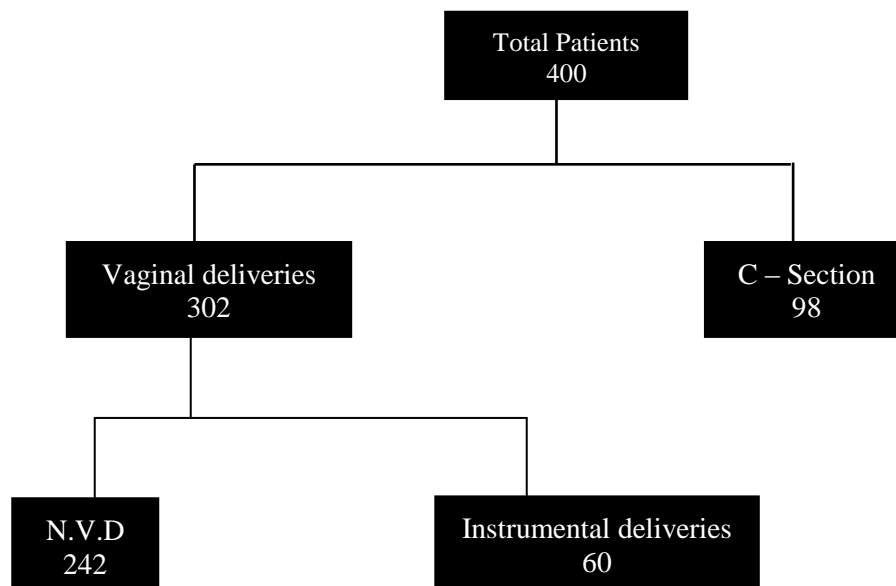


Fig. 1: Outcome of induction (Mode of delivery).

potentially increase the risk of perinatal infection, they should be administered to patients with PPRM of less than 34 weeks gestation since the neonatal benefits may outweigh the risks.¹⁵ One systematic review between 30 – 36 weeks who had immediate induction showed no difference in any neonatal outcome of interest including perinatal death, confirmed early onset neonatal sepsis, RDS, intraventricular hemorrhage, necrotizing enterocolitis or neonatal length of stay in the hospital by delaying induction.¹⁶ So we induced 20 cases of PPRM in this way and delivered them safely within 24 hours of induction, foetal outcome depending upon the duration of pregnancy.

In cases of insulin requiring gestational diabetes mellitus, we induced only cases beyond 38 weeks. This view is supported by a systematic review.¹⁷ They either had induction at 38 weeks or had expectant care.¹⁸ This study found no difference in the rate of caesarean delivery between these approaches but found that foetal macrosomia, defined as birth weight > 4000 gms was significantly reduced by induction of labour at 38 weeks.

Cases of intrauterine foetal death were recruited for induction of labour as soon as the diagnosis was confirmed. This strategy was supported by a study which says that, delayed delivery after 24 hours of the diagnosis has been associated with an increased risk of anxiety, years after the loss when compared with women in whom labour was induced within 6 hours.¹⁹

Moreover, in our setup in cases of I.U.F.D we have the risk of intervention by untrained birth attendants if the patients are left for expectant management and most of our patients are unable to afford biochemical monitoring required during the expectant phase.

Most of our cases i.e., 27% had induction of labour due

to non medical reasons as mentioned in "patients and methods".

Labour induction at term, performed for maternal request or convenience is generally frowned upon and there is reluctance to accommodate such requests, believing, it is not in the best interests of the mother and the foetus²⁰ but in our situation, it was justifiable due to our social setup and general difficulties which our public has to face to transport labouring women from remote areas to a well equipped hospital.

We had a very small number of cases of pregnancy complicated with cardiac disease who had induced labour. Most of the cardiac cases have expectant management but these three cases were induced due to the safety of available methods of induction (PGE₂ and oxytocin) and had normal outcome. Induction in cardiac disease is supported by a very few studies in the literature.²¹⁻²²

As per mode of delivery, the vaginal delivery rate comes out to be about 70% as compared to about 25% caesarean sections.

This is comparable to many studies in the literature where vaginal delivery rate is about 63% to 65%.²³

In our case, the slightly higher N.V.D. rate is because most of our patients were multigravidas.

Instrumental deliveries accounted for 16% of all deliveries in a unit representative of many large units in the U.K.²⁴ We had 60 instrumental deliveries out of 400 that is just comparable to above study.

Conclusion

Non-medical reasons are the most common indications for induction of labour these days and can be performed safely due to available methods and proper selection of the cases. Other common causes are also listed.

References

1. Preparing for induction of labour. In: Enkin M, Keirse MJ, Neilson J, Crowther C, Dulely L, Hodnett E, Hofmeyr J (editors). *A Guide to Effective Care in Pregnancy and Childbirth*, 3rd edn. Chapter 39. New York, NY: Oxford University Press; 2000. pp. 375-82.
2. Martin JA, Hamilton BE, Sutton PD, Ventura SJ, Menacker F, Kirmeyer S, et al. Births final data for 2005. *Natl Vital Stat Rep* 2007; 56.
3. Declercq ER, Sakala C, Corry MP, Applebaum S. *Listening to Mothers II: Report of the Second National US Survey of Women's Childbearing Experiences*. New York, NY: Childbirth Connection, 2006.
4. Prysak M, Castronova FC. Elective induction versus spontaneous labor: a case control analysis of safety and efficacy. *Obstet Gynecol* 1998; 92: 47-52.
5. Ziatnik FJ. Elective induction of labor. *Clin Obstet Gynecol* 1999; 42: 757-65.
6. Sanchez-Ramos L, Olivier F, Delke I, Kaunitz AM. Labor induction versus expectant management for postterm pregnancies: a systematic review with meta-analysis. *Obstet Gynecol* 2003; 101: 1312-18.
7. Mozurkewich E, Chilimigras J, Koepke E, Keeton K, King VJ. Indications for induction of labour: a best-evidence review. *Int J Obstet Gynecol* 2009; 116: 626-636.
8. Gulmezoglu AM, Crowther CA, Middleton P. Induction of labour for improving birth outcomes for women at or beyond term. *Cochrane Database Syst Rev* 2006: CD004945.
9. Alexander JM, Bloom SL, McIntire DD, Leveno KJ. Severe preeclampsia and the very low birth weight infant: is induction of labour harmful? *Obstet Gynecol* 1999; 93: 485-8.
10. Hall DR, Odendaal HJ, Steyn DW. Delivery of patients with early onset, severe pre-eclampsia. *Int J Gynaecol Obstet* 2001; 74: 143-50.
11. Coppage KH, Polzin WJ. Severe preeclampsia and delivery outcomes: is immediate caesarean delivery beneficial? *Am J Obstet Gynecol* 2002; 186: 921-3.
12. Mozurkewich EL, Wolf FM!. Premature rupture of membranes at term: a meta-analysis of three management schemes. *Obstet Gynecol* 1997; 89: 1035-43.
13. Dare MR, Middleton P, Crowther CA, Flenady VJ, Varatharaju B. Planned early birth versus expectant management (waiting) for prelabour rupture of membranes at term (37 weeks or more). *Cochrane Database Syst Rev* 2006: CD005302.
14. Hannah ME, Ohlsson A, Farine D, Hewson SA, Hodnett ED, Myhr TL, et al. Induction of labour compared with expectant management for prelabor rupture of the membranes at term. *TERMPROM Study Group. N Engl J Med* 1996; 334: 1 005-10.
15. Lewis DF, Brody K, Edwards MS et al. Preterm premature rupture of membranes: a randomized trial of steroids after treatment with antibiotics. *Obstet Gynecol* 1996; 88: 801-805.
16. Hartling L, Chari R, Friesen C, Vandermeer B, Lacaze-Masmonteil T. A systematic review of intentional delivery in women with preterm prelabor rupture of membranes. *J Matern Fetal Neonatal Med* 2006; 19: 177-87.
17. Boulvain M, Stan C, Irion O. Elective delivery in diabetic pregnant women. *Cochrane Database Syst Rev* 2001: CD001997.
18. Kjos S, Henry OA, Montoro M, Buchanan TA, Mestman JH. Insulinrequiring diabetes in pregnancy: a randomized trial of active induction of labour and expectant management. *Am J Obstet Gynecol* 1993; 169: 611-15.
19. Trulsson, O, Radested I. The silent child – Mothers' experiences before, during, and after stillbirth. *Birth* 2004; 31: 189-195.
20. I Z Mackenzie. Induction of labour at the start of the new millennium. *Reproduction* 2006; 131: 989-998.
21. Roncaglia N, Arreghini A, Locatelli A, Bellini P, Andreotti C, Ghidini A. Obstetric cholestasis: outcome with

- active management. Eur J Obstet Gynecol Reprod Biol 2002; 100: 167-70.
22. Oron G, Hirsch R, Ben-Haroush A, Hod M, Gilboa Y, Davidi O, et al. Pregnancy outcome in women with heart disease undergoing induction of labour. BJOG 2004; 111: 669-75.
23. O'Leary C, de Klerk N, Keogh J, Pennell C, de Groot J, York L, Mulroy S, Stanley F. Trends in mode of delivery during 1984-2003: can they be explained by pregnancy and delivery complications? BJOG 2007; 114: 855-864.
24. Olagundoye V, MacKenzie I. The impact of a trial of instrumental delivery in theatre on neonatal outcome. BJOG 2007; 114: 603-608.