Original Study

INDUCTION OF LABOUR AUDIT AT LABASA HOSPITAL – FROM DECEMBER 2017 TO JULY 2018

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ABSTRACT

Introduction
Induction of labour is carried out worldwide for a broad range of maternal and foetal indications, so as to improve pregnancy outcomes. The various methods of induction have different success rates and there is preferential use of the different modes by institutions, regions and countries. Induction of labour in Fiji is only carried out in the three divisional hospitals. This study was carried out to review the induction rate, methods used, indication and the outcomes of induction of labour in Labasa hospital.

Methods
A retrospective study of cases of induced labour at Labour ward, Labasa Hospital, Fiji, between December 1, 2017 and July 31, 2018 was carried out. This is also the first study to be done in Labasa Hospital in regards to induction of labour. Data was collated from the maternity and delivery records from the medical records department.

Results
Out of the 1436 deliveries recorded in the study period, 131 (9.1%) of patients had induction of labour. The methods of induction used included misoprostol (58.1%), syntocinon (with amniotomy) (13.7%), foleys (3.4%), misoprostol + syntocinon (12%), misoprostol + foleys (3.4%), Foleys + syntocinon (3.4%) and lastly misoprostol + foleys + syntocinon (6%). Postdatism was the commonest indication for labour at 36.8%. Seventy percent of induced parturients had successful induction of labour that led to vaginal deliveries. Misoprostol had the highest success rate at 75%. A little over half of participants, 63 (53.8%) booked in the second trimester and 21 (17.9%) participants booked late.

Conclusion
Induction of labour is a safe and effective means of expediting delivery for the benefit of either the mother or the baby. Despite discrepancies in dosages and combination of methods used by different obstetricians, the outcome generally is positive. A larger population study that includes the other two divisional hospitals would give us more feedback on induction of labour.

Key Words: *Induction of labour*

INTRODUCTION

Induction of labour is defined as the process of artificially stimulating the uterus to start labour before its spontaneous onset for the purpose of achieving vaginal delivery [2].

Augmentation is the process where the progress of labour is enhanced by artificial rupture of membranes and/or administration of an infusion of oxytocin.
Over the past several decades, the incidence of labour induction for shortening the duration of pregnancy has continued to rise [1].

Unpublished data from the WHO Global Survey on Maternal and Perinatal Health, which included 373 health-care facilities in 24 countries and nearly 300 000 deliveries, showed that 9.6% of the deliveries involved labour induction. The induction rates in developed countries are 25% higher as compared to developing countries which can have as low as 1.4% induction rate [1].

Over the years, various professional societies have recommended the use of induction of labour in circumstances in which the risks of waiting for the onset of spontaneous labour are judged by clinicians to be greater than the risks associated with shortening the

duration of pregnancy by induction [5]. These circumstances generally include gestational age of 41 completed weeks or more, prelabour rupture of amniotic membranes, hypertensive disorders, maternal medical complications, non-reassuring foetal surveillance, foetal death, foetal growth restriction, chorioamnionitis, multiple-gestation pregnancy, placenta abruption and other complications. Induction is sometimes performed for "social" or "geographic" reasons, without a medical or obstetric indication.

Induction when successful results in vaginal delivery but sometimes fails with potential risks of increased rate of operative vaginal delivery, Caesarean birth, excessive uterine activity, abnormal foetal heart rate patterns, uterine rupture, delivery of preterm infant due to incorrect estimation of dates, and possibly cord prolapse [4].

Prior to initiation of induction the woman must be assessed for its indications, contraindications to the procedure, gestational age, cervical favourability (Bishop score assessment), and assessment of the pelvis, foetal size, presentation, membrane status (intact or ruptured), and foetal well-being; documentation of discussion with the patient including indication for induction and disclosure of risk factors must be undertaken. The state of the cervix is one of the most important predictors of a successful labour induction [6]. In 1964, Bishop described a scoring system based on cervical examination that predicted vaginal delivery in multiparous women.

AIM

This study was designed to review the induction rate, methods and outcome of induced labour and its significance in obstetric practice at the maternity ward, Labasa Hospital

METHODOLOGY

This was a retrospective study of cases of induced labour at Labour ward, Labasa Hospital, Fiji, between December 1, 2017 and July 31, 2018.

Labour ward at Labasa hospital provides specialized obstetric services to parturient with both complicated and uncomplicated pregnancies. It serves as a referral centre and receives patients from the 3 subdivisional hospitals and various health centres and nursing stations from the Northern division of Fiji.

During the study period a total of 1,436 deliveries (both vaginal and caesarean sections) occurred at the hospital.

A total of 131 parturient had induction of labour during the period under review. The maternity and delivery records (patient case notes and birth/delivery registers) were retrieved from the medical records department. The induction of labour book was also reviewed. Necessary data on the socio-demographic characteristics of parturient, induction methods, indications, and outcome of induced labour was collated.

The department has an induction of labour guideline in place at labour ward, and in addition to this a specialised consent form is signed by patient before induction is commenced. However there is no set protocol on when to state that an induction method has failed (failed induction of labour), or when to add other modes of induction. Whereas when the decision is made that failure of induction has occurred, either an elective or emergency caesarean section is done.

The main outcomes measured were the proportion of women who had induction of labour, the indications for induction, and the proportion of successful and failed inductions. Conclusions were drawn by means of simple percentages.

RESULTS

A total of 1436 deliveries were recorded in the period under review, of these 131 had induction of labour, giving an induction rate of 9.1%. Since this was a retrospective study not all 131 folders were retrieved. Of the 131 inductions, 117 folders were reviewed, giving a retrieval rate of 89%.

The participants had varying levels of education as depicted in Table 1. All were booked cases and received antenatal care.

Table 1. Socio-demographic characteristics, parity and gestational age at booking (n= 117)

Variables	n	%
Age (years)		
<20	8	6.8
20 – 24	34	29.1
25 – 29	30	25.6
30 – 34	23	19.7
35 – 40	18	15.4
>40	4	3.4
Education status		
Primary	9	7.7
Secondary	62	53.0
Tertiary	46	39.3
Parity		
0	45	38.5
1 – 4	51	43.6
≥5	21	18.0
Gestational age at booking (weeks)		
<13	33	28.2
13 – 27	65	53.8
28 – 41	21	17.9

Table 2. Methods and indications for induction (n=117)		
Variables	n	%
Method		
Single methods:		
Misoprostol	68	58.1
Syntocinon (with amniotomy)	16	13.7
Foleys	4	3.4
Combined methods:		
Misoprostol + Syntocinon	14	12.0
Misoprostol + Foley	4	3.4
Foleys + Syntocinon	4	3.4
Misoprostol + Foleys + Syntocinon	7	6.0
Main Indications		
Postdate	43	36.8
Term PROM	25	21.4
Hypertensive disorders	16	13.7
Intrauterine growth restriction	13	11.1
Gestational DM	7	6.0
Decreased foetal movements	5	4.3
Intrauterine foetal death	3	2.6
Cholestasis in pregnancy	2	1.7
Others	3	2.6

Table 3. Outcome of Induction/Mode of delivery of Induced Parturient		
Variables	n	%
Method and Mode of delivery		
Misoprostol (n=68)		
Vaginal	51	75
Caesarean	17	25
Syntocinon (with Amniotomy) (n=16)		
Vaginal	11	69
Caesarean	5	31
Foleys (n=4)		
Vaginal	1	25
Caesarean	3	75
Misoprostol + Syntocinon (n=14)		
Vaginal	10	71
Caesarean	4	29
Misoprostol + Foley (n=4)		
Vaginal	2	50
Caesarean	2	50
Foleys + Syntocinon (n=4)		
Vaginal	3	75
Caesarean	1	25
Misoprostol + Foleys + Syntocinon (n=7)		
Vaginal	3	43
Caesarean	4	57

Table 4. Reasons for Failed Induction (n=26)		
Variables	N	%
Reasons for failed induction		
Misoprostol (n=17)		
Foetal distress	9	53.0
Malpresentation	2	11.8
Patient choice	2	11.8
No reason documented	2	11.8
Prolonged labour	1	5.9
Cephalopelvic disproportion	1	5.9
Syntocinon (with Amniotomy) (n=5)		
Malposition	2	40
Foetal distress	1	20
Cephalopelvic disproportion	1	20
Malpresentation	1	20
Foleys (n=3)		
Foetal distress	3	100
Misoprostol + Syntocinon (n=4)		
Obstructed labour	2	50
Arrested labour	1	25
Foetal distress	1	25
Misoprostol + Foley (n=2)		
Macrosomia	1	50
Polyhydramnios	1	50
Foleys + Syntocinon (n=1)		
Obstructed labour	1	100
Misoprostol + Foleys + Syntocinon (n=4)		
Arrested labour	2	50
Foetal distress	2	50

The gestational age at booking shows that 17.9% of parturient booked late in their pregnancy, between 28 and 42 weeks of gestation. About 28.2% booked at <13 weeks and 53.8% from 13-27 weeks. Primigravidae accounted for 38.5% of cases, 18% were grand multiparous, while others (43.6%) were Para 1–4 (Table 1)

Table 2 shows the methods used for induction of labour to include misoprostol (58.1%), syntocinon (with amniotomy) (13.7%), Foleys (3.4%), misoprostol and syntocinon (12%), misoprostol and Foleys (3.4%), Foleys and syntocinon (3.4%) and lastly misoprostol, foleys and syntocinon (6%).

The indications for induction are also shown in Table 2, where postdate was the commonest indication accounting for 36.8% of inductions.

In all cases where misoprostol was used, as per protocol of labour ward, Labasa hospital, 25 micrograms (µg) of misoprostol was given orally mixed into 25mls of water. This 'misoshake' was given every 2 hours for a maximum of 6 doses. If the patient did not start having contractions after the total of 150µg of misoprostol, a 2nd cycle would be commenced with the same dosing regimen either the next day or after one day break.

The lowest dose at which vaginal delivery was achieved was after the 3rd dose of the 1st cycle, majority delivered

vaginally before the completion or up to the completion of the 1st cycle (82.4%).

Except for one parturient who achieved vaginal delivery after the 3rd cycle, the rest who received 3 or 4 cycles failed induction and had caesarean section done.

Table 3 shows that out of all 117 inductions undertaken, 81 (69.2%) parturients had successful induction leading to vaginal birth. The rest had failed induction resulting in either elective or emergency caesarean section for various reasons, as noted in Table 4.

Misoprostol had the highest success rate of 75%, due to the smaller sample size of the other methods of induction conclusive interpretation success and failure cannot be made and a larger sample size is required

DISCUSSION

The process of induction of labour requires the intervention of a skilled birth attendant to prevent undue morbidity and mortality. The induction rate at Labasa Hospital of 9.1% is similar to the data collated by the WHO Global Survey on Maternal and Perinatal Health. A study done by Nippita et al in Australia, 2011 showed variation in induction of labour rates across the 72 hospitals in NSW with an induction rate ranging from 9.7% to 41.2% [8]. Illustrating that within the same country there can be variation in induction rates at different hospitals. The commonest indication for induction of labour in Labasa Maternity ward was postdate at 36.8%, is similar to most studies that show postdatism to be the commonest indication for induction of labour. Accurate determination of gestational age to ascertain a post date pregnancy may sometimes be an obstetric dilemma due to being unsure of the date of the last menstrual period in addition to late booking.

The commonest method of induction (misoprostol) used for cervical ripening in this study had a good success rate and an interesting finding was that the success of the 1st and 2nd cycle was found to be better than pursuing 3 or more cycles. The 25µg dosage used was in line with the World Health Organization recommendation of 25µg to 50µg. Hopefully near future the 25µg tablets that have been recently produced will be available in more developing countries such as Fiji. Larger samples of the six other modes of induction that was used should be studied for more conclusive findings to be made on their efficacy as methods of induction of labour.

Syntocinon was found to be used mostly as an augmentation method rather than as an induction method at Labasa Hospital, a major contributor could be unfavourable bishops scoring that would rule out syntocinon induction as a mode of induction. A feasible study could look at how many deliveries are augmented at Labasa Hospital and their success rates, focusing at what the bishop scores were for those that had failed. There are few studies on labour augmentation and as yet WHO has not come up with protocols regarding its implementation.

The overall successful induction rate of 69.2% in this study was close to the 75% as noted by the Mayo clinic data from USA. [9] It is important to ensure proper foetal-maternal surveillance during induction because of its significant role in the safe management of parturient with high risk pregnancies and also as way of preventing perinatal and maternal morbidity and mortality that could complicate such pregnancy and the induction procedures.

CONCLUSION

Induction of labour is beneficial and safe in high risk pregnancies when the benefits of early delivery outweigh the risk of continuation, but this is not without attendant complications and failures which can be significantly reduced with proper patient selection, good preparation, as well as adequate foetomaternal monitoring to ensure a favourable obstetric outcome of a healthy mother and baby which are the targets of the safe motherhood initiative as well as the sustainable development goals.

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