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EXPERIENCE OF INDUCTION OF LABOUR OUTCOME WITH PROSTAGLANDIN E2

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ABSTRACT

Objective: Aim of study was to determine indication and fetomaternal outcomes of induction of labor. **Method:** A prospective cross sectional study was conducted at Imam Hospital Karachi, Pakistan, from 20th July 2020 to 20th Nov 2020. 80 women with singleton pregnancy fulfilling criteria of NHS guidelines for induction of labor were included. Women with previous cesarean sections and required emergency cesarean sections in current pregnancy were excluded from study. Prostaglandin E2 was inserted vaginally after assessing bishop's score. Indications and mode of delivery were main outcome measures. Frequency and percentages were calculated by SPSS Version 20. **Result:** The most common indication of induction of labour is post term pregnancy (37.5%) followed by PIH, and preeclampsia (25%). 73.75%women delivered successfully by vaginal route and 26.25% were delivered by cesarean sections. Failure of induction occurred in 11.25% women undergoing induction. **Conclusion:** Induction of labour is safe and effective in well selected women. It reduces need for operative delivery and prevents its consequences in future.

KEYWORDS: Post-date pregnancy, induction of labour, prostaglandin, Bishop's scores.

INTRODUCTION

On women's birth experience, induction has an important impact. In developed states the labour induction is higher as compared to developing states. In the UK and USA twenty percent of all baby deliveries are because of labour induction. In developed states the induction rates are on rise that is mainly attributed to physicians and patient factor. As per Fawole's WHO Global survey, labour induction in developing states is low 12.1 percent in Asia and 4.4 percent in Africa.[1] The labour induction is performed when the life of fetus or mother are more than continuing the pregnancy risk. Neonatal and maternal outcomes are improved by induction of labour and it is related directly to the millennium development aims. The main labour induction aim is to deliver successfully from vagina as morbidity related to the operative delivery is decreased. The fetal outcome is improved by labour induction that is identified to be raised beyond forty one gestational age weeks. In settings of low resource, to reduce caesarean section is essential step because there is more risk in caesarean delivery. The cesarean deliveries are lowered by induction of labour in hospitals. When labour induction is practiced more there are fewer cases of caesarean deliveries. The labour induction duration varies, in which majority of patients delivered within twelve hours after induction process. In time the reduction from delivery induction is of benefit to the patients and their family members, as labour duration decreases, it supports in decreasing congestion in labor rooms.[2]

Worldwide, the most common cause for labour induction is hypertensive pregnancy disorders. Post pregnancy, because it carries life risks to the babies due to the placenta ageing, leads to the insufficiency of placenta with advancing gestation age. Also according to Jay, postdate pregnancy is related to the meconium aspiration and increased birth trauma.[3] Also induction helps in reducing still births and perinatal deaths that are related to the postdate pregnancy.[4] In membrane premature rupture, the NHS guidelines suggest labour induction after thirty four weeks because there is high risk of fetal

and maternal infections because of membranes rupture. According to NHS, the neonatal and maternal indication of labour induction includes conditions like postdate pregnancy and Abruption placentae. Maternal medical conditions include antiphispholipid syndrome, chronic hypertension, chronic pulmonary disease, renal disease, and diabetes mellitus. Moreover, fetal indications include fetal severe growth restriction, isoimmunization, oligohydramnios, intrauterine fetal death, and chorioamnionitis.[5] According to Pakistani research, 18.1 percent cases had failed labour induction and among nulliparous women it was common who had low Bishop's Score.[6] Ceplhalopelvic disproportion was common operative delivery indication in 8.3 percent patients undergoing labour induction.[7]

The main outcomes of maternity were caesarean section delivery after labor induction, for seven days postpartum hospital stay, blood transfusion, perineal laceration, and maternal death. Moreover, the neonatal consequences were neonatal death happening before the patient discharge, admission to neonatal rooms, fresh still birth, low birth weight, and score of APGAR less than seven at five minutes. At Toronto University, in Canadian study for the labour induction effects on "still birth", it was assessed that labour induction was related to the decrease in still birth in postdate women. 59 percent women, as per South African study had vaginal delivery spontaneously and 40 percent women had caesarean section.[8] The main objective of this study is to evaluate the induction of labour cases in Imam Hospital, its indications and outcome and failure rate as well as causes. This study assessed the adherence to NHS guidelines for induction of labour at Imam Hospital in Karachi, so that changes can be made to make sure that labour induction is conducted only when directed, and the process must fulfill the NHS guidelines. This study would help modify our local labour induction process and thus the care of patients.

Methodology

This is prospective observational study. This research was conducted in Imam Hospital, Karachi from 20th July to 20th Nov, 2020 after approval of ethical committee of hospital. 80 singleton pregnancies with cephalic presentation who fulfill criteria of NHS guideline for induction of labor.[9] Before induction informed consent was taken from each participant Women with previous cesarean section and have indication of emergency cesarean section in current pregnancy were excluded. Detail history including demographic status, obstetrical and medical history was taken at admission Gestational age was calculated by dating scan and examination including bishop scoring was done along CTG. All variables including indication of induction of labor, outcome of delivery, fetal outcome were recorded on a predesigned Performa. Induction of labor was started with prostaglandin E2 tablet 3mg by labor ward doctor. Woman was reassessed after 6hours. If labour was not established second dose of prostaglandin E2 was repeated. Than reassessed after 6hours for progress of labor. The induction was declared as failure after eight to twelve hours of "oxytocin infusion" when uterine contractions not led to the developed cervical dilatation throughout labour phase, over two hour period at least, or if patient was not under active labour. When labor was established maintains partogram and delivers the women, statistical analysis was done on SPSS version 20. Frequencies and percentages were calculated for demographic data, indication of induction of labour, outcome of delivery and fetal outcome.

RESULTS

The study comprised 80 women with mean age of 24years ± 3.2 S.D. There was more induction in primigravida (67.5%) as compared to multi gravid (32.5%). The bi-shop's score was found to be 0-3 in 30%, 4-6 in 45 %, and <6 in 25 % cases. The post term pregnancy was the common indication of induction of labor as shown in table 1. A higher number of women delivered through vaginal route (73.75%), while 26.25% women had cesarean section as shown in table 2. Failed induction were the common reason for cesarean section as shown in table 3. All babies were born alive in study no neonatal deaths were found.

Table 1: Indications for induction of labor.

S. No.	Indications	Frequency(no)	Percentage %
1	Post term pregnancy	30	37.5%
2	PIH & Preeclampsia	20	25.00%
3	Premature ruture of membrane	14	17.00%
4	Gestational diabetes	12	15.00%
5	IUGR	4	05.00%

Table 2: Mode of delivery after induction of labor.

S. No.	Mode of delivery	Frequency(no)	Percentage %
1	SVD	59	73.75%
2	Instrumental delivery	-	-
3	Cesarean section	21	26.25%

Table 3: Indications of cesarean section after induction of labor.

S. No.	Indications	Frequency(no)	Percentage %
1	Failed induction	9	11.25%
2	Non progress of labor	7	08.75%
3	Fetal distress	5	06.25%

DISCUSSION

The induction of labour is most common obstetric intervention,1 in 5 pregnancies in developed countries and 1in 10 in developing countries[10]. Our study results show that majority of women delivered vaginally (73.75%), which is similar findings reported by others[11]. As this study was conducted at Imam hospital where majority of female came from middle class status and belonging to a culture where induction was not considered for planned delivery, therefore no induction was done on maternal request. Indication of induction of labour includes premature rupture of membrane, post-term pregnancies, macrosomia, medical disorder of pregnancies and intra uterine growth restriction[12]. In our study labour induction was done in most of cases due to post term pregnancy (37.5%) and pregnancy induced hypertension /pre-eclampsia (25%). These findings are consistent with other studies[13][14]. In 26.25% cases of labor induction delivery occurred by cesarean section and failed induction in11.25% case with similar result in other studies[9][13]. In our study the caesarean section indications were 9% percent failed induction, 8.75% non progress of labour and 6.25% fetal distress. Elective induction was not associated with adverse newborn outcome in our study similar to other studies[15]. The cesarean deliveries are lowered by induction of labour in Hospitals. When labour induction is practiced more there are fewer cases of caesarean deliveries.

CONCLUSION

Induction of labour with prostaglandin E2 is safe and effective in well selected women. It reduces need for operative delivery and prevents its consequences in future.

STRENGTH AND LIMITATIONS

The study had a prospective design the data was collected prospectively rather than retrieved from medical records. The major limitations of the study was small sample size and samples were recruited from a medical Centre that serves middle class status, so sample is not representative of whole general population.

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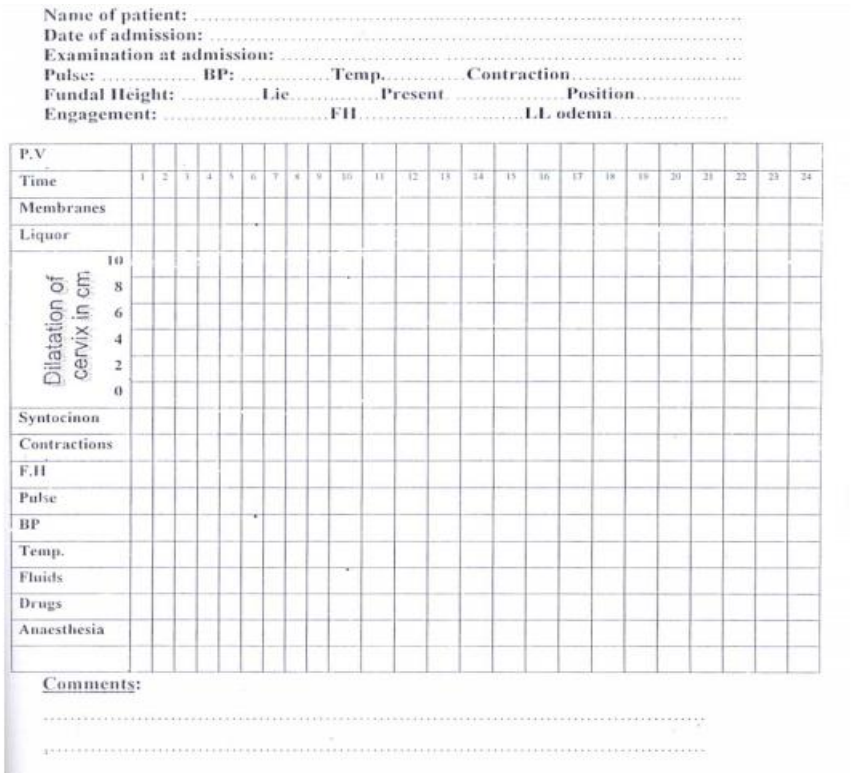
Appendix 1: Partogram



Appendix 2: Questionnaire

1. Name:.....
2. (1) Age: <30 ☐ (2) >30 ☐ (3) >35 ☐
3. Occupation (1) House wife (2) Employee
4. Gestational age (weeks): (1) <37 ☐ (2) 37-41 ☐ (3) > 41 ☐
5. Parity: (1) PG (2) Pare 1 ☐ (3) Pare 2 or more ☐
6. Periovs C/S (1) Yes ☐ (2) No ☐
7. Past history of induction: (1) Yes ☐ (2) No ☐
8. Indication for induction:
   (1) Post-term pregnancy (2) Hypertension & pre-eclamp ☐
   (3) IUGR ☐ (4) D.M ☐ (5) IUFD ☐
   (6) PROM ☐ (7) BOH ☐
9. Pre-induction cervical assessment (Bishop score)
   (1) 0-3 ☐ (2) 4-6 ☐ (3) 7-10 ☐
10. Membranes: (1) Intact ☐ (2) Ruptured ☐
11. Method of induction:
    (1) ARM-syntectinon (2) ARM alone ☐ (3) PGs Preparation ☐
12. Induction started at: (1) A.M. ☐ (2) P.M ☐
13. Repeated trial of induction (1) Yes ☐ (2) No ☐
14. Total dose of syntocinon: (1) 5-1OU ☐ (2) 2OU ☐ (3) more than 2OU ☐
15. Delivery time: (1) A.M. ☐ (2) P.M ☐
16. The cause of C/S:
    (1) Fetal distress ☐ (2) Maternal complication ☐
    (3) Failed induction ☐ (4) CX. Dystocia ☐
17. Neonatal out come: (1) Alive ☐ (2) Dead ☐
18. Apgar score: (1) 1 min ☐ (2) 5 min ☐
19. Fetal weight (Kg) (1) <3.5 ☐ (2) >3.5 ☐
20. Admission to Nursery: (1) Yes ☐ (2) No ☐