

## RISK OF CESAREAN SECTION AND RESPIRATORY DISTRESS OF NEONATE IN DELIVERY BY INDUCTION IN NULLIPAROUS AFTER 37 WEEKS GESTATION

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Article Received on 10/12/2020

Article Revised on 30/12/2020

Article Accepted on 20/01/2021

### ABSTRACTS

**Objective of the study:** The purpose of this study is to explore does the induction of labour for nulliparous women after 37 weeks gestation increase the risk of cesarean delivery and fetal distress. **Material and methods:** Retrospective study was conducted, at Fatima AL-ZAHRAA Hospital 232- primiparous women with singleton pregnancy after 37 weeks gestation who delivered in the period of May 2017 and May 2018 The sample was divided into two groups those who were in spontaneous labour (179) and those who underwent induction and either delivered vaginally or by cesarean section (53) Data were then analysed by the use of SPSS system, The P. value was considered significant if  $< 0.05$  **Results:** In our study we found that induction of labour at completed thirty-seven weeks or more in nulliparous women resulted in a significantly increased risk for delivery by cesarean section 39.6 % in the induction group versus 5.6 % in the spontaneous labour group on taking the bishop score as an important factor. The rate of cesarean delivery between the induction group with unfavorable cervix was 59.4 % versus 9.1 % in the spontaneous labour group and 9.5 % In the induction group with favorable cervix vs 5.4 % in the patient with spontaneous labour and favorable cervix. Generally, the spontaneous labour group had more advanced dilatation and effacement on admission only (6.1 had bishop score  $< 6$ ). The indication for the cesarean deliveries differed between the two groups for instance fetal distress was the first indication in the induction group (47.6 %) followed by failure of progress (33.3 %) then failure for induction (19 %). In the spontaneous labour group the failure of progress (60 %) then fetal distress (20%) then severe pre - eclampsia (PET), (6,5%). **Conclusion:** The result of this study showed that induction of labour increased the risk of cesarean section 7 times and fetal distress in nulliparous women with an unfavorable cervix. Spontaneous labour group generally had more advanced dilatation and effacement and as a consequence a short interval from arrival to delivery.

### INTRODUCTION

Cesarean birth has become the most commonly performed hospital - based operative procedure in the United States accounting for approximately 25 % of live birth, with a Maternal mortality rate of 20 per 100,000 birth compared with a maternal mortality rate of 2.5 per 100,000 for vaginal delivery. As a trial to decrease the cesarean delivery rate, three separate practice guidelines have been developed:

- Vaginal birth after cesarean section
- Active management of labour
- Induction of labour

Although it has been thought that elective induction of labour at term is associated with an increase incidence of cesarean delivery resulting from failed induction. More recent studies have demonstrated that routine induction at or 41 weeks gestation is not associated with an

increased risk of cesarean section overall on any subgroup of women, regardless of parity states of cervix method of induction with the presence of Modern methods of cervical ripening.

labour can be often induced with comparative ease. Induction of labour is a common event, which has been an documented to occur on average in 25 % of cases naturally." In spite of that induction of labour is still considered as a cause, of increased rate of cesarean delivery especially in nulliparous women. The overall cesarean delivery rate within our hospital (Fatima AL-ZAHRAA Hospital) was found to be rising which is reflecting the trend that is being seen in other parts of the country.

## MATERIAL AND METHODS

### Study design

This study is a retrospective one, was performed between May 2017 to May 2018 in obstetric and pediatric side of the statistic department of Fatima AL-ZAHRAA-Hospital in Baghdad, Iraq

**Population:** 232 primiparous women who were admitted to the labour room in spontaneous labour or those who underwent induction and delivered vaginally or by cesarean section.

### Inclusion criteria

Primiparous, singleton pregnancy, Complete 37 weeks gestation or more, Alive fetus, Cephalic presentation

### Exclusion criteria

Multipara, Preterm labour, Breech presentation, dead fetuses, Major congenital anomalies and schedule cesarean section, Data for the study was taken from the patient files, using precisely prepared format that was designed to collect the key data elements that were necessary for the study. For instance, the personal history, obstetric history, the type of labour either spontaneous or induced. The gestational age was calculated from last menstrual period (LMP), if not sure or not available by early ultrasound (U / S) scan. The Bishop score at admission, at the time of induction was put as an important variable. If Bishop Score has not been calculated in the patient record, it was collected from the available findings of vaginal examination. The amniotic fluid index and the non - stress test were taken in consideration when available in the patient record. Those women who met the inclusion criteria were classified into either the spontaneous labour group or the induced group. The induction group included all the women who were scheduled for induction of labour for medical causes i.e., no elective induction. Both groups were divided into those women with a favorable cervix (Bishop score > 6) and those women with unfavorable cervix... Bishopscore < 6 . In the induction group cervical ripening agent were used when indicated. the most commonly used agent was Misoprostol dosing regimens ranges from 25 to 50 ug every 3-4 hrs and mainly used transvaginal as 25ug every 3hrs to maximum of the 8 doses and 50ug every 3 hrs to maximum of 6 doses. Intravenous oxytocin was used as the induction agent in the favorable cervix. The mode of delivery was categorized into cesarean delivery and vaginal delivery. The delivery outcome and the condition of the newborn were described by

Apgar score in the first minute, sex of the baby, body weight Admission of the neonatal intensive care unit (NICU) and the indication of the admission.

Data were then analyzed with the used of SPSS system for windows (release 10) the p value was considered significant if <0, 05

## RESULTS

During the study period there were 908 fullterm delivery in Fatima Al - zahraa hospital. Two hundred thirty-two (232) were nulliparous women who had been admitted to the labour room in spontaneous labour or for induction of labour at term. The spontaneous labour group were 179 women (77, 2 %) while the induction group were 53 patients (22, 8 %) The characteristics was different significantly between the two groups, particularly in the bishop score and gestational age.

The bishop score was available for all patients in the 2 groups for 179 women in the spontanous labour group 84 patients (93.9%) were found to have a bishop score >6 and 11 patients (6.1%) were found to have bishop score <6.

For the 53 women in the induction group 32 (60.4%) were found to have bishop score of <6 and 21 women (39.6%) were found to have bishop score >6.

The cesarean delivery rate for women in the spontaneous labour was 5.6 %, women who were admitted for induction of %labour were found to have a cesarean delivery rat of 39.6%.

When Bishop Score was taken in consideration in both groups: The cesarean delivery rate for women who were induced with unfavorable cervix was 59.4 %, the rate for women who were induced with a favorable cervix was 9.5 %.

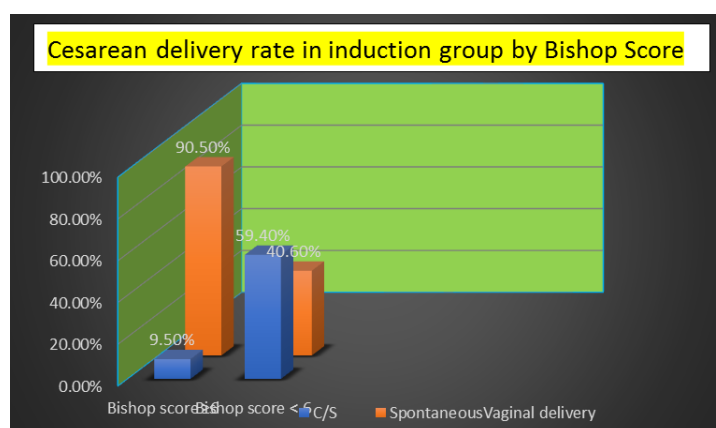
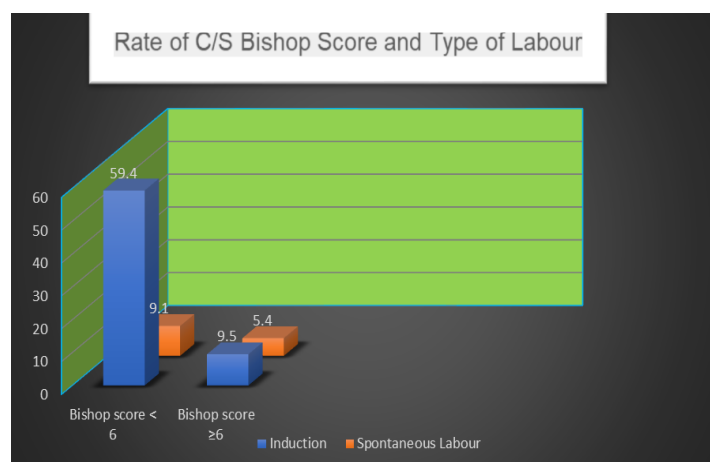
\* In the spontaneous labour group: The rate of cesarean delivery among the patient with unfavorable cervix was 9.1 % vs. 5.4 % in patient with favorable cervix. The induction of labour for women with unfavorable cervix was associated with significantly increased risk of cesarean section (C / S) and fetal distress.

### P - Value < 0.000

The indications for the cesarean deliveries differed between the two groups, for instance: fetal distress was the first indication in the induction group (47.6 %) followed by failure of progress (33.3 %) then failure of induction (19 %). In the spontaneous labour group the first indication of cesarean delivery was failur of progress (60 %) then feta distress (20 %, then severe pre - eclampsia (PET) (6.5 %) After analysis of the causes of admission to neonatal intensive care unit (NICU) most newborn were admitted due to fetal distress which was more in the induction group (20.8 %) vs. (12.8 %) in the spontaneous labour group.

In our study we see that fetal distress was the first indication of cesarean section (els). All oligohydromnios cases who delivered by cesarean section (els) the indication was fetal distress. The first indication of cesarean section (els) in pre eclumpsia cases was failure of induction.

Distribution of bishop Score in both Groups			
Bishop Score	Induction Group	Spontaneous Labour Group	P-value
	No. (%)	No. (%)	
< 6	42(60.4%)	11(6.1%)	0.000
≥6	21(39.6%)	168(93.9 %)	



Delivery out come in the Study groups			
	Induction group	Spontaneous labour group	P- value
Body weight in gm (Mean ± SD)	2879.06 ± 393.609	2810.34 ± 407.985	0.587
Sex of the baby			0.528
- Male	29(55.8%)	101(56.4%)	
- Female	24(44.2%)	78(43.6%)	
Apgar score in 1 <sup>st</sup> minute			0.046
- <7	13(24.5%)	24(13.4%)	
- ≥7	40(75.5%)	155(86.6%)	
Admission to NTCU			0.093
- Yes	19(35.8%)	45(25.3%)	
- No	34(64.2%)	133(74.7%)	

## DISCUSSION

Induction of labour is common in obstetric. According to the most studies, the rate of induction varies from 9.5 % to 33.7 % (99). In the past thirteen years, the proportion of births resulting from an induced labour has doubled, one baby in five is now born after the birth process has been started by the pharmacological method. Then the association between induction of labour and increased

risk of cesarean delivery has been documented in many studies. In our study we found that induction of labour at completed thirty-seven weeks or more in nulliparous women resulted in a significantly increased risk for delivery by cesarean section, 39.6 % in the induction group versus 5.6 % in the spontaneous labour group. On taking the Bishop score as an important factor. The rate of cesarean delivery between the induction group with unfavorable cervix was 59.4 % versus 9.1 % in the

spontaneous labour group, and 9.5 % in the induction group with favorable cervix. Generally, the spontaneous labour group had more advanced dilatation and effacement on admission only (6.1 % had Bishop score 6). In similar but prospective study in Portland hospital (1997-1999) the cesarean delivery rate was 23.7 % among the induced patients versus 11.5 % in the spontaneous labour group.

Misoprostol is a highly effective agent for labour induction. Complications remain a matter of concern, particularly uterine hyperstimulation, precipitate labour, meconium stained liquor, uterine rupture and post-partum haemorrhage. The available data suggest that risks can be minimized with the use of small dosages and that the starting dose should not exceed 25 ug vaginally or orally. Also, fetal distress was studied as a complication of induction and then admission to the neonatal intensive care unit (NICU) by main investigators. The fetal distress in our study as a cause of cesarean section, could be a result of the cause of induction not from the induction itself: 10 % in postdate pregnancy, 20 % in pre-eclampsia, 30 % in premature rupture of membranes (PROM), 50 % in oligohydramnios.

## CONCLUSION

Induction of labour as a vital solution for many complicated pregnancies like prolonged pregnancy, pregnancy with pre gestational or gestational diabetes or pre-eclampsia is one of the important obstetric practice but as a sequel of it cesarean delivery rate will increase as many recent studies showed. From our study, the induction of labour increased the risk of cesarean section 7 time and fetal distress in nulliparous women with unfavorable cervix. Spontaneous labour group generally had advanced dilatation and effacement and as more consequence a short interval from arrival to delivery. The indications of induction in our study were maternal and fetal causes, i.e., indicated type no elective indications. The causes of cesarean section in the 2 groups were for fetal distress and failure of induction (induction group), failure of progress with few cases of severe pre-eclampsia (PET) in the spontaneous labour group.

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