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ORIGINAL ARTICLE

Elective Induction of Labor and Postpartum Hemorrhage in Females Presenting for Normal Vaginal Delivery at Term

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ABSTRACT

Background: Labor induction is the process or treatment that stimulates childbirth and delivery. Induction of labor without a medical indication is termed elective induction of labor and appears to be increasing even more rapidly than induction of labor as a whole. Postpartum hemorrhage (PPH) leads to prominent causes of maternal death. Uterine massage is a simple first line treatment as it helps the uterus to contract to reduce bleeding.

Objectives: To determine the frequency of elective induction of labor in females undergoing normal vaginal delivery at term and to compare the frequency of postpartum hemorrhage with spontaneous versus elective induced labor in females presenting for normal vaginal delivery at term.

Study Design: Descriptive case series study

Place and Duration of Study: Department of Obstetrics & Gynecology, Shaikh Zayed Women Hospital, Larkana from 1st October 2021 to 31st March 2022.

Methodology: Two hundred females were enrolled. They were divided in two groups; elective induction or spontaneous delivery. Females who had active labour without oxytocin with no membrane rupture before labour, labeled as having spontaneous labour otherwise.

Results: The induced delivery was noted in 35(17.50%) females and spontaneous type of delivery was noted in 165(82.50%) females, the postpartum hemorrhage was noted among 23(11.50%) females. The postpartum hemorrhage is not associated with type of delivery (p=0.249).

Conclusion: The elective induction of labor in females undergoing normal vaginal delivery at term was 17.50% patients and postpartum hemorrhage was 11.50% patients.

Keywords: Postpartum hemorrhage, Postpartum hemorrhage (PPH), Spontaneous, Induced, Labour, Delivery

INTRODUCTION

Labour induction is progressively increased in United States over the past two decades from 9.5-22%. Maternal or fetal conditions including intrauterine growth restriction, diabetes mellitus and hypertension may lead to induced labour. Induction without any known induction is known as elective induction and its frequency is even more higher than labor induction.[1]

Induction of labour is carried out in over 20% of pregnancies in developed countries.[2] Recent evaluations of strategies to reduce induction in the absence of medical indication before 39 weeks of gestation have reported decreases in admissions to the neonatal intensive care unit, conflicting results about stillbirth, and little information about cesarean delivery, historically one of the key concerns surrounding induction without medical indication.[3-5]

A World Health Organization study has reported that the frequency of induction of labor at term was 4.9%. Among females who had induction of labor, PPH occurred in 0.28% cases while females who had spontaneous delivery had PPH in 0.33% females. The difference was found to be insignificant (P>0.05).[6] Another study also reported that frequency of induction of labor was 9% only. Among females who had induction of labor, PPH occurred in 7.0% cases while females who had spontaneous delivery had PPH in 7.1% females. The difference was found to be insignificant (P>0.05).[7]

But another study reported that frequency of induction of labor was 48.4%. Among females who had induction of labor, PPH occurred in 5.5% cases while females who had spontaneous delivery had PPH in 3.4% females. The difference was found to be significant (P<0.05).[8]

Another study reported that frequency of induction of labor was 4.2%. Among females who had induction of labor, PPH occurred in 7.2% cases while females who had spontaneous deliveries had PPH in 7.4% females. Although, the difference was found to be significant (P<0.05).[9]

Rationale of this study is to find the frequency of elective induction of labor and then to compare the frequency of PPH in females undergoing normal vaginal delivery at term. Literature has reported that the rate of elective induction is reduced in developed countries as induction was associated with more perinatal complications. But controversial results have been observed in literature which showed that there is no difference in complication rate whether induction would be done or not which decided that females may go for induction of labor if required. So to overcome this confusion, we want to conduct this study. Moreover, no local data is available. So through this study we also want to get local estimates. On the basis of which we can implement the results for management of such cases in future.

MATERIALS AND METHODS

This descriptive case series was conducted at Department of Obstetrics & Gynecology, Shaikh Zayed Women Hospital, Larkana from 1st October 2021 to 31st March 2022 and 200 cases were enrolled. Females of age between 18-40 years, parity <5 presenting with singleton cephalic alive fetus at gestational age of >37 weeks (on USG) were included. All females with chronic medical conditions like hypertension (BP >140/90 mmHg), diabetes (BSR >186 mg/dl), abnormal ECG, asthma, deranged LFT (AST >40 IU, ALT >40 IU), deranged RFT (creatinine >1.2 mg/dl), gestational complications like PIH (BP >140/90 mmHg), gestational diabetes (BSR >186mg/dl), preeclampsia (PIH with proteinuria +1 on dipstick method) or eclampsia (convulsions with PIH), premature rupture of the membranes, chorioamnionitis (on clinical evaluation), macrosomic babies (weight >4000 grams), oligohydramnios (AFI <5cm) or polyhydramnios (AFI >11cm) abnormal fetus cardiac rate (FHR >200bpm) and bleeding were excluded.

Demographic (name, age, gestational age and contact) was obtained. Labor was monitored. Females who had active labour (in which cervix is dilated upto 3-4cm) without oxytocin use and membrane rupture before labour induction, was labeled as having spontaneous labour otherwise, the females who required induction agent prior to the onset of active labor, then induction of labor was labeled. The frequency of elective induction of labor was noted. Then two groups were formed on the basis of elective induction or

spontaneous delivery. All deliveries were done by researcher herself. After delivery of placenta, blood loss was noted. Then females were shifted to ward for 24 hours and blood loss was noted. If blood loss was >500ml during this period then PPH was labeled and all this information was recorded. Data was analyzed in SPSS version 21. Both groups were compared by using Chi-square test and student's 't' test with p<0.05 as significant.

RESULTS

The mean age of females who underwent induction was 27.71±6.83 years and in spontaneous delivery group was 30.12±5.55 years. The mean gestational age of the females underwent induction was 39.06±0.87 weeks and in spontaneous delivery group was 38.96±0.84 weeks (Table1). There were 44(22%) nulliparous, 41 (20.50%) had parity 1, 43(21.50%) had parity 2, 37 (18.50%) had parity 3 and 35(17.50%) had parity 4 (Table 2).

Post-partum hemorrhage was noted in 23(11.50%) while 177 (88.5%) females no post-partum hemorrhage (Table 3). The mean total blood loss underwent induction was 242.54±128.94ml and in spontaneous delivery group was 311.95±113.73ml. Statistically significant (P=0.000) difference found between the delivery types with total blood loss (Table 4). The PPH was noted in 23 (11.5%) females in which 6(17.1%) females who had induced delivery and 17 (10.3%) females had spontaneous delivery. Statistically insignificant (p=0.249) difference found between the delivery type with PPH (Table 5).

Table 1: Descriptive statisticsof the patients (n=200)

Variable	Induced delivery (n=35)	Spontaneous delivery (n=165)
Age (years)	27.71±6.83	30.12±5.55
Gestational age (weeks)	39.06±0.87	38.96±0.84

Table 2: Frequency distribution of parity

Parity	No.	%
No	44	22.0
1	41	20.5
2	43	21.5
3	37	18.5
4	35	17.5

Table 3: Frequency distribution of PPH

PPH	No.	%
Yes	23	11.5
No	177	88.5

Table 4: Comparison of total blood loss (ml) with delivery type

Total blood loss (ml)	Induced delivery	Spontaneous delivery
	424.54±128.94	311.95±113.73

P= 0.000

Table 5: Comparison of PPH with delivery type

PPH	Induced delivery	Spontaneous delivery	P value
Yes	6 (17.1%)	17 (10.3%)	0.249
No	29 (82.9%)	148 (89.7%)	

DISCUSSION

Postpartum hemorrhage is one of the most lethal complications associated with caesarean and even vaginal delivery. It is also considered as the leading cause of maternal mortality in low income countries. In Pakistan, it is responsible for almost 28% maternal mortality during both types of delivery. It is defined as huge blood loss during delivery ranging from 500-1000ml.[10]

In this study, the induced delivery was noted in 35 (17.50%) females and spontaneous type of delivery was noted in 165 (82.50%) females. The PPH was noted among 23 (11.50%) females.

Hussain and Shafqat[11] documented that the out of 44 patients the spontaneous delivery done in 24 (54.54%) patients and the induced delivery was done in 13 (29.54%) patients. Studies from Pakistan also reported the similar results.[12] Likewise international studies also reported the similar findings.[13] PPH incidence is reported to be different in primigravida and multigravida. Mode of delivery also influences on the postpartum hemorrhage and difference was observed in spontaneous and induced labor.[12,14] Results highlighted that, in postpartum hemorrhage females, 13% had induced delivery whereas 8% had spontaneous labor.

Present study showed the mean value of total blood loss of females who went through induced delivery was 242.54±128.94 ml and the mean value of total blood loss of females who went through spontaneous delivery was 311.95±113.73 ml (P=0.00). Postpartum hemorrhage was noted in 23 (11.5%) females in which 6(17.1%) females had induced delivery and 17 (10.3%) females had spontaneous delivery (P=0.249).

A World Health Organization study has reported that the frequency of induction of labor at term was 4.9%. Among females who had induction of labor, PPH occurred in 0.28% cases while females who had spontaneous delivery had PPH in 0.33% females. The difference was found to be insignificant (P>0.05).[6]

Another study also reported that frequency of induction of labor was 9% only. Among females who had induction of labor, PPH occurred in 7.0% cases while females who had spontaneous delivery had PPH in 7.1% females. The difference was found to be insignificant (P>0.05).[7]

A study by Hussain and Shafqat[11] conducted on 88 patients. Results showed that, out of 44 spontaneous labor, only 3 patients show postpartum hemorrhage whereas five patients had PPH as a whole.

Khireddine et al[15] concluded that the even in low risk women, induction of labor, regardless of the method used, is associated with a higher risk of PPH than spontaneous labor. However, there was no excess risk of PPH in women who underwent induction of labor for non-standard indications. But another study reported that frequency of induction of labor was 48.4%. Among females who had induction of labor, PPH occurred in 5.5% cases while females who had spontaneous delivery had PPH in 3.4% females. The difference was found to be significant (P<0.05).[8] One more study reported that frequency of induction of labor was 4.2%. Among females who had induction of labor, PPH occurred in 7.2% cases while females who had spontaneous delivery had PPH in 7.4% females, although, the difference was found to be significant (P<0.05).[9]

CONCLUSION

The of elective induction of labor in females undergoing normal vaginal delivery at term was found in 17.50% patients and the frequency of PPH was noted in 11.50% patients and PPH is not associated with type of delivery.

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