ORIGINAL RESEARCH PAPER

Obstetrics & Gynaecology

STUDY OF EFFECT OF POSITION OF PRESENTING PART AND FETO-MATERNAL OUTCOME IN SPONTANEOUS AND INDUCED LABOUR

KEY WORDS: Position, Presenting Part, Spontaneous, Induced, Labour

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ABSTRACT

The present study compared the effect of position of presenting part and feto-maternal outcome in women with spontaneous and induced labour. Total 80 patients were recruited in the study, 40 each in spontaneous and induced group. A detailed clinical examination of including history, general physical examination was done. Per vaginal examination was done every three to four hourly noting cervical dilatation, effacement, position of presenting part, station of head, membranes, sutures. Partogram filled for each patient. Effect of position of presenting part is studied in both spontaneous and induced groups. Feto-maternal outcome compared in both groups.

INTRODUCTION

Labour is a clinical diagnosis characterized by regular, painful uterine contractions that increases in frequency intensity and duration and are associated with progressive cervical effacement and dilatation. More specifically, it is associated with a change in the myometrial contractility pattern from irregular "contractions" (long lasting, low-frequency activity) to regular "contractions" (high-intensity, high frequency activity).[1] Labour can start spontaneously or be medically induced for various maternal or fetal reasons.[2]

The important step for fetal assessment includes the determination of position of the presenting part. It is the relation of the arbitrary bony fixed point on the presenting part to the different quadrants of the pelvis. Each presenting part have eight positions. The relationship and position of the presenting part to the bony pelvis must be carefully assessed and recorded as descent and rotation occur during labour.

In the case of a longitudinal lie with a vertex presentation, occiput is the denominator used to describe the position. When the occiput faces the maternal pubic symphysis, the position is called as direct occiput anterior. If the occiput is at iliopubic eminence, it is called either a right or left occiput anterior. When the occiput is placed over the right sacroiliac joint, the position is called right occipitoposterior and when placed over the left sacroiliac joint, is called left occipitoposterior. As the occiput points towards the sacrum, the position is called direct occiput posterior. This method of describing the fetal position can be used with other presentations by substitution of the vertex for the other presenting fetal anatomic landmark.

Occiput posterior and occiput transverse positions during labour considered as the most common cephalic malpositions. The incidence of occiput posterior position in the first stage of labour has been reported to vary between 10% to 34%.[3] About 90% of malpositions diagnosed early in labour rotate into an occiput anterior position before delivery.[5] The incidence of occiput posterior and occiput transverse positions that persist in the second stage of labour has been reported to be between 4% and 10%.[4]

MATERIAL AND METHODS:

It was a hospital based comparative clinical study. Total 80 pregnant women were recruited who met inclusive criteria admitted in labour room of department of Obstetrics and Gynaecology, SRMSIMS Bareilly, over a period of one and half year from November 2019 to April 2021 were recruited. Forty patients were recruited in each Spontaneous and Induced labour group. Women of age 20-40 years in active labour at term gestation with singleton pregnancy having vertex presentation with reassuring fetal conditions were included. Informed consent was obtained before recruitment. Women with post caesarean pregnancy, cephalopelvic disproportion, known case of uncontrolled diabetes mellitus /hypertension/ asthma, advanced labour were excluded. A detailed clinical assessment of patient including history, general physical exam and pelvic examination was done. Two groups were recruited. 1) Spontaneous labour group- those patients who went into spontaneous labour. 2) Induced labour group- those patients in whom induction of labour was done due to various indications.

Progress of labour was assessed clinically by per abdomen examination and per vaginal examination at regular intervals noting cervical dilatation and station of head. Various parameters like length of cervix, dilatation, position of presenting part, station, membranes, caput, moulding, sutures were also observed during per vaginal examination. Position of head was accessed clinically whether occipito-posterior, occipito-anterior or occipito-transverse. Intrapartum monitoring was done as per our labour room protocols. Modified WHO Partogram was filled up for each patient. Any complication during second stage was noted. Status of neonates at birth in the form of cry, APGAR score, birth weight, need for resuscitation, neonatal intensive care unit admission, neonatal morbidity and mortality was noted.

Microsoft Excel was used in creating the database and producing graphs, while the data were analyzed using the Statistical Package for the Social Sciences (SPSS) version 23.0 for Windows.

RESULTS AND OBSERVATIONS:

The present study was conducted with the aim to study the effect of position of presenting part in women with spontaneous and induced labour and their perinatal outcome. A total number of 80 antenatal women were included in the study.

Table No 1: Demographic characteristic of studied women of both the groups

Demographic Variables		Spontaneous (n=40)	Induced (n=40)	P value
Age Group	20-25 Years	20 (50.0%)	21 (52.5%)	0.846

	26 – 30 Years	17 (42.5%)	14 (35.0%)	
	31 – 35 Years	3 (7.5%)	5 (12.5%)	
	36-40 Years	0 (0.0%)	0 (0.0%)	
BMI (kg/m2)	Underweight <18.5 kg/m2	0 (0.0%)	0 (0.0%)	0.278
	Normal 18.5- 24.9 kg/m2	27 (67.5%)	20 (50.0%)	
	Overweight >25-29.9 kg/m2	13 (32.5%)	18 (45.0%)	
	Obese >30 kg/m2	0 (0.0%)	2 (5.0%)	
Antenatal Status	Booked	21 (52.5%)	30 (75.0%)	0.062
	Un-booked	19 (47.5%)	10 (25.0%)	

Table No. 2 :Distribution on the studied women on the basis of position

Position	Spontaneous (n=40)	Induced (n=40)	P value#
Occipito anterior	34 (85.0%)	33 (82.5%)	0.762
Occipito posterior	6 (15.0%)	7 (17.5%)	
Occipito Transverse	0 (0%)	0 (0%)	
Total	40	40	

Table no 2. shows that majority of the patient had occipito anterior position in both spontaneous (85%) and induced (82.5%) group while none of the women had occipito transverse position. P value was 0.762 which was not statistically significant due to same distribution.

Table No.3 : Distribution of the studied women on the basis of position of presenting part with respect to mode of delivery

Group	Occipito-anterior (n=67)		Occipito-posterior (n=13)	
	FTVD	LSCS	FTVD	LSCS
Spontaneous	29 (87.9%)	4 (12.1%)	3 (50.0%)	3 (50.0%)
Induced	27 (79.4%)	7 (20.6%)	3 (42.9.0%)	4 (57.1%)
Total	56 (83.6%)	11 (16.4%)	6 (46.2%)	7 (53.8%)
P Value	0.350		0.797	

Table no 3 shows that in the occipito anterior group majority of the women that is 83.6% delivered vaginally but in the occipito posterior group majority that is 53.8% women were taken for caesarean section.

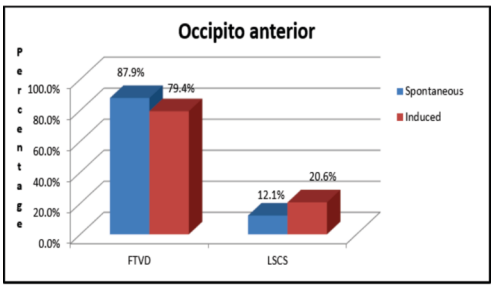

Figure No. 3.1: Distribution on the basis of Occipito anterior position with respect to mode of delivery

Table No. 4: Neonatal outcome of both groups

Neonatal outcome	Spontaneous (n=40)	Induced (n=40)	P value
Baby weight (gms)	2782.75±551.73	2848.32±381.14	0.544
APGAR at 1 min	8.00±0.64	8.08±0.89	0.666
APGAR at 5 min	9.05±0.50	9.10±0.81	0.741
NICU Admission	2 (5.0%)	3 (7.5%)	0.644
Hyperbilirubinemia	2 (5.0%)	3 (7.5%)	0.644
Neonatal Sepsis	0 (0.0%)	1 (2.5%)	0.314
Meconium Aspiration syndrome	0 (0.0%)	1 (2.5%)	0.314

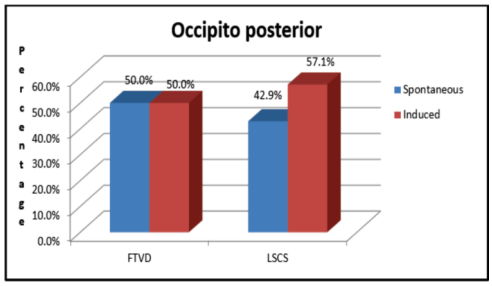

Figure No. 3.2: Distribution on the basis of occipito posterior position with respect to mode of delivery

Table no 4 shows the neonatal outcome birth weight, APGAR score at 1st min and after 5th min were similar in both the groups, had insignificant difference.

In both spontaneous and induced group NICU admission (5.0%) and hyperbilirubinemia (5.0%) were more common as compared to neonatal sepsis and meconium aspiration syndrome. In induced group one baby had neonatal sepsis and one had meconium aspiration syndrome. While comparing neonatal outcome APGAR, NICU admission, hyperbilirubinemia, neonatal sepsis, meconium aspiration syndrome were comparable in both the groups with p value not significant.

Table No. 5: Maternal complication in both groups

Maternal complication	Spontaneous (n=40)	Induced (n=40)	P value
Post-Partum Hemorrhage	1 (2.5%)	3 (7.5%)	0.303
Wound infection & Sepsis	1 (2.5%)	0 (0.0%)	0.314
Perineal tear	1 (2.5%)	1 (2.5%)	1.000
Total	3 (7.5%)	4 (10%)	

Table no 5 shows the maternal complications in both spontaneous and induced groups. In induced group post-partum hemorrhage (7.5%) more common followed by perineal tear (2.5%) but in spontaneous group there were one case of post-partum hemorrhage, one of perineal tear and one of wound infection & sepsis each.

DISCUSSION

The present study compared the effect of position of presenting part and feto-maternal outcome in women with spontaneous and induced Labour. Majority of the cases were in the age group 20-25 years followed by 26-30 years. In present study the mean age of the studied patients was 24.05±3.84 years in spontaneous and 24.58±3.19 years in induced group. Our institute being a tertiary care centre covering rural population this observation indicates towards the increasing awareness of hospital delivery in young generation.

The position of the fetal head during labor is an important factor to consider when there are signs of labor protraction or arrest disorders. Occiput posterior (OP) and transverse positions have been associated with poorer outcomes of labour for both the mother and fetus. 85% of the studied pregnant women were belonging to the occipito anterior and only 15% cases had occipito posterior position in spontaneous labour group while 82.5% cases had occipito anterior and 17.5% had occipito posterior in induced labour group. Occipito anterior is more commoner position than occipito-posterior. Only in approx 20% of labour the fetus

enters the pelvis in an occipito posterior (OP) position.[5] Approximately 90% will rotate spontaneously to the occipito-anterior position by the time of delivery. The prevalence of persistent occipito-posterior (POP) is estimated to be 2–5%.

When rotation fails the OP position can deliver in one of the following ways:

1) It will remain as OP and deliver as face to pubis.
2) The rotation may get arrested at the transverse diameter resulting in deep transverse arrest. Deep transverse arrest is a condition in which the fetal head is at the level of ischial spines with the saggital sutures in the transverse diameter of the midpelvis but no further descent occur in spite of good uterine contractions.
3) It can get arrested at any stage before full dilatation.

In this study total thirteen patients were in occipito posterior position. Out of these six patients (46.2%) rotated anteriorly and delivered vaginally. seven patients (53.8%) were taken up for LSCS. Out of these seven, three (42.8%) had deep transeverse arrest, two (28.6%) had persistent occipito posterior position and 2 (28.6%) had fetal distress which were the main indications for taking up for LSCS. None of the patients had face to pubis delivery in our study.

We found that the position of presenting part in relation to mode of delivery had insignificant differences statistically (p value <0.350) but incidence of LSCS was more in the occipito posterior group. 83.6% patients had spontaneous vaginal delivery when position of presenting part was occipito-anterior while with occipito-posterior position 53.8% were taken up for caesarean section. This shows inclination towards caesarean section among obstetricians in case of malposition. The reason for increasing caesarean section rate could be clinical bias because of the use of same partograph for occipito anterior and occipito posterior group as the progess of labour is slower in occipito posterior as compared to occipito-anterior.

Neri et all (1995) also suggested that the fetus delivered in occipito posterior position had prolonged second stage of labour with reduction in spontaneous vaginal delivery. In concordance to our results many authors reported increased rate of caesarean section in occipito-posterior position in induced patients as compared to spontaneous labour.[6]

Fitzpatrich M et al (2001) studied influence of persistent occipito-posterior on delivery outcome and concluded that occipito-posterior contributed disproportionately to caesarean section and instrumental delivery with fewer than half of the occipito-posterior ending in spontaneous delivery and the position accounting for around 12% of all the caesarean deliveries for dystocia.[7]

The neonatal outcome birth weight, APGAR score at 1st min and after 5th min was insignificantly higher in induced labour group. Neonatal complications like NICU admission, hyperbilirubinemia, neonatal sepsis, meconium aspiration syndrome were more common in induced group but were not statistically significant. In both spontaneous group and induced group NICU admission and hyperbilirubinemia were more common than neonatal sepsis and meconium aspiration syndrome. **Gupta S et al (2014)** reported the neonatal outcome was comparable in both spontaneous and induced labour.[8]

The maternal complications in induced group were post-partum hemorrhage (7.5%) followed by perineal tear (2.5%) but in spontaneous group there was one case of post-partum hemorrhage, perineal tear and wound infection and sepsis each. The results were not statistically significant. **Sargunam PN et al (2019)** compared induction of labour to expectant management in primigravidas and reported that maternal outcome, patient satisfaction, neonatal outcome were almost similar in both groups.[9]

CONCLUSION

Position of presenting part plays a major role in labour outcome. There are more chances of rotation of head in occipito-posterior position in spontaneous labour as compared to induced labour. There are increased rates of caesarean section in induced labour but differences are not stastically significant. Maternal and perinatal outcomes were comparable in both spontaneous labour and induced labour groups in supervised labour.

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