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Outcomes of oligohydramnios in term pregnancy ending in normal vaginal delivery or C section irrespective of induction

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Abstract---Objective: To determine the outcome of oligohydramnios in term pregnancy ending in normal vaginal delivery or C Section irrespective of induction. Study Design: Descriptive Study. Place and Duration of Study: Department of Obs & Gynae, HMC, Peshawar from 23rd January 2022 to 22 July, 2022. Methodology: A total of 289 pregnant female patients at term (37-42 weeks) presented to the Gynae OPD of our hospital with oligohydramnios (diagnosed clinically having AFI < 5%) were enrolled through nonprobability consecutive sampling technique. Sample size was calculated taking 75%¹⁰ proportion of meconium-stained liquor cases as an outcome of oligohydramnios, 95% confidence interval and 5% margin of error on WHO sample size calculator. Patients with singleton pregnancy, nulliparity, Bishop score <5, gestational age of 37-42 weeks were included. Results: Statistically insignificant differences were observed for various outcomes variables in oligohydramnios at term as meconium-stained liquor, Apgar Score < 7 at 1 min, NICU admissions, apgar score < 7 at 5 min with respect to age of patients as p-values of

0.702, 0.489, 0.244, 0.489 and 0.900 were recorded respectively. Conclusion: This study demonstrated that oligohydramnios at term did not influence the outcomes in nulliparous women with unfavorable cervix.

Keywords---C Section, induction labor, oligohydramnios, vaginal delivery.

Introduction

Common obstetric interventions include induction of labour (IOL), which is the artificial instigation of labour. Since 1990, the frequency with which labour is artificially induced has roughly doubled. Differences in the guidelines and the lack of consensus on the clinical practice guidelines on IOL contribute significantly to the vast range of IOL rates observed across countries. It is believed that today, in high-income countries, roughly 25% of newborns have IOL. In contrast, low and middle-income countries tend to have lower equivalent rates (LMIC).^{1,2} The uterus is made up of two parts, the body and the cervix; the former is made up of smooth muscle, while the latter is made up mostly of collagen. During pregnancy and childbirth, the cervix changes in a variety of ways, including becoming shorter, thinner, and dilating. The cervical modifications necessary for labour can be induced mechanically or pharmaceutically.^{3,4} An individual's obstetric and medical history will determine whether a delivery should be performed late in the preterm, early in the term, late in the term, or beyond term. There are circumstances in which it is deemed that inducing labour with an IOL will result in better results for the mother, the baby, or both compared to expectant management, or waiting for labour to begin on its own. Oligohydramnios is one of the more common clinical circumstances, and the ACOG's broad list of delivery timing guidelines includes the range of 36 0/7 to 37 6/7 weeks of gestation for this condition.^{5,6} Decreased amniotic fluid volume (AFV) relative to gestational age characterises oligohydramnios. Amniotic fluid volume (AFV) varies throughout pregnancy, growing linearly until 34–36 weeks gestation, when it plateaus at at 400 mL and remains stable until full term. After 40 weeks of pregnancy, the AFV begins a gradual decline that ultimately results in a smaller birth volume in post-term pregnancies. Because of this pattern, AFV can be clinically assessed by measuring fundal height and evaluating the baby using ultrasonography at any point throughout the pregnancy.^{7,8} When there is a disparity between the fundal height measurement and the gestational age, it is important to consider amniotic fluid abnormalities as a possible cause. Inconsistencies necessitate an ultrasound examination of the amniotic fluid.⁹ In one study, as per outcomes for oligohydramnios in term pregnancy, 80% c section, 73.3% low birth weight (< 2.5 kg), 60% NICU admissions, 53.3% Apgar Score at 1 min (<7), 54% Apgar Score at 5 min (< 7), 75% Meconium-stained liquor cases were recorded.¹⁰ The purpose of this study was to determine the outcome of oligohydramnios in term pregnancy ending in normal vaginal delivery or C Section irrespective of induction.

Materials and Methods

This was a prospective descriptive study conducted at the Department of Obs & Gynae, HMC, Peshawar from 23rd January 2022 to 22 July, 2022 after taking approval from the Hospital's Ethical Committee. A total of 289 pregnant female patients at term (37-42 weeks) presented to the Gynae OPD of our hospital with oligohydramnios (diagnosed clinically having AFI < 5%) were enrolled through nonprobability consecutive sampling technique. Written informed consent forms will also obtained from all patients and they were thoroughly briefed about the research purpose of this study. Patients having age between 18 to 35 years with singleton pregnancy, nulliparity, Bishop score <5 and gestational age 37-42 weeks were included. Patients with previous cesarean section, post term pregnancies, previous perinatal loss, recurrent missed abortion, and medical disorders like DM, Hypertension and cardiac disease were excluded. A careful history was taken, and a thorough physical examination was done, and all patients were dealt with as per standard protocol. Outcomes variables were, low birth weight (< 2.5 kg), NICU admissions, Apgar Score at 1 min (<7), Apgar Score at 5 min (< 7) and meconium-stained liquor.

Data was collected and analyzed using the Statistical Package for Social Sciences (SPSS) Version 23.0. Mean and SDs were calculated for numerical variables such as age and gestational age. Frequencies and percentages were calculated for categorical variables such as low birth weight (< 2.5 kg), NICU admissions, Apgar Score at 1 min (<7), Apgar Score at 5 min (< 7) and meconium-stained liquor. Outcomes were cross tabulated with age groups in order to see effect modifiers using chi-square test keeping p value < 0.05 as statistically significant.

Results

Mean and SDs for age, gestational age was 25.63±3.09 years and 38.71±1.07 weeks respectively, (See Table-I). As per outcomes for oligohydramnios at term, 45 (15.6%) cases of low birth weight, 27 (9.3%) cases of meconium-stained liquor, 166 (57.4%) neonates had Apgar Score < 7 at 1 min, 27 (9.3%) neonates had NICU admissions while 24 (8.3%) neonates had apgar score < 7 at 5 min. (See Table-2). Statistically insignificant differences were observed for various outcomes variables for oligohydramnios at term like low birth weight (< 2.5 kg), NICU admissions, Apgar Score at 1 min (<7), Apgar Score at 5 min (< 7) and meconium-stained liquor as p value 0.702, 0.489, 0.244, 0.489 and 0.900 were recorded respectively. (See Table-III)

Table-I: Descriptive Statistics of Study (n=289)

Numerical Variables	Mean	Std. Deviation
Age (Years)	25.63	3.094
Gestational Age (Weeks)	38.71	1.074

Table-II: Frequencies and Percentages for Outcome Variables (n=289)

Outcome Variables	Frequency	Percent
Low Birth Weight (< 2.5kg)	45	15.6%
Meconium-stained liquor	27	9.3%
Apgar Score < 7 at 1 min	166	57.4%
NICU Admissions	27	9.3%
Apgar Score < 7 at 5 min	24	8.3%
Total	289	100.0%

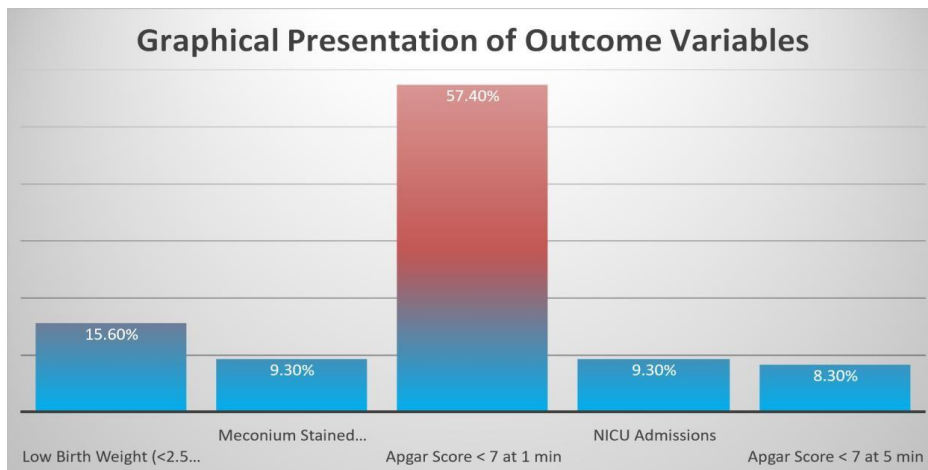


Table-III: Stratification of outcome variables with age groups (n=289)

		Age Groups		Total	P Value
		< 25 Years	> 25 Years		
Outcome Variables	Low Birth Weight (< 2.5kg)	25	20	45	0.702
		55.6%	44.4%	100.0%	
	Meconium-stained liquor	16	11	27	0.489
		59.3%	40.7%	100.0%	
	Apgar Score < 7 at 1 min	83	83	166	0.244
50.0%		50.0%	100.0%		
NICU Admissions	16	11	27	0.489	
	59.3%	40.7%	100.0%		
Apgar Score < 7 at 5 min	13	11	24	0.900	
	54.2%	45.8%	100.0%		
Total		153	136	289	
		52.9%	47.1%	100.0%	

Discussion

This study was conducted on 289 patients presented with oligohydramnios at term. Although much work has been done in the field of induction of labour in cases of oligohydramnios (AFI<5 cm), but in case of induction in oligohydramnios not much work has been reported especially in our local population. This has

added more information to the research. Kwon J-Y et al.¹¹, reported that incidence of oligohydramnios varies from 6%-44% with an average of 12%. According to Gumus II et al.¹², and Banks EH¹³ and Miller DA¹³ the incidence of oligohydramnios varies from 25%-35% with an average of 28%. Mean and SDs for age, gestational age and induction-delivery interval was 25.63±3.09 years and 38.71±1.07 weeks, respectively. (See Table-I). As per outcomes for oligohydramnios at term, 45 (15.6%) cases of low birth weight, 27 (9.3%) cases of meconium-stained liquor, 166 (57.4%) neonates had Apgar Score < 7 at 1 min, 27 (9.3%) neonates had NICU admissions while 24 (8.3%) neonates had apgar score < 7 at 5 min. (See Table-2). Moreover, in this study statistically insignificant differences were observed for various outcomes variables for oligohydramnios at term like like low birth weight (< 2.5 kg), NICU admissions, Apgar Score at 1 min (<7), Apgar Score at 5 min (< 7) and meconium-stained liquor as p value 0.702, 0.489, 0.244, 0.489 and 0.900 were recorded respectively. (See Table-III)

Venturini P et al.¹⁴, reported that incidence of Lower Segment Caesarean Section (LSCS) in the low AFI group (38.3%) was not significantly higher than in the control group (34.2%). Martinez Medel J et al.¹⁵, also found in their study that there was no significant difference between mode of delivery and caesarean section indication. Alchalabi HA et al.¹⁶, reported that women in the low AFI group had increased rate of LSCS. Manzanares S et al.¹⁷, found that women in the low AFI group when induced found to have increased incidence of LSCS and instrumental delivery. During labour, non-reassuring Foetal Heart Rate (FHR) pattern was higher in BO group as compared to NL group (46% vs 30%), which is statistically insignificant.

According to Manzanares S et al.¹⁷, irregular FHR tracing is found to be significantly higher in the oligohydramnios group when induced. Meconium-stained amniotic fluid was found in more number of case of BO group during intrapartum as compared to NL group (48% vs 30%) which is statistically significant (p-value <0.05). Martinez Medel J et al.¹⁵, reported that, there is no significant difference in the meconium-stained liquor in between low AFI and NL group. In this study, 27 (9.3%) cases of meconium-stained liquor were reported. (See Table-2).

In one study, there was no statistical significant difference between both the groups in terms of APGAR score of the babies at one minute and five minutes (p-value 0.234 and 0.834 respectively) and NICU admission rate (p-value 0.810) and therefore were inconsistent to the findings of this study where statistically insignificant differences were observed for various outcomes variables in oligohydramnios at term as statistically insignificant differences were observed for various outcomes variables for oligohydramnios at term for low birth weight (<2.5kg), NICU admissions, Apgar Score at 1 min (<7), Apgar Score at 5 min (< 7) and meconium-stained liquor as p value 0.702, 0.489, 0.244, 0.489 and 0.900 were recorded respectively. (See Table-III)

In literature, different authors reported that there was slight increase in the incidence of low APGAR score in new-borns of mothers with borderline liquor cases in comparison to NL group but it was statistically insignificant. But there was no significant difference in NICU admission in case of induction in low liquor group when compared with those having NL. Venturini P et al.¹⁴, reported that there is

no significant difference in the perinatal outcome of induction in nulliparous women with unfavourable cervix with oligohydramnios compared with those having NL and thus these findings were also inconsistent with the results of this study as 166 (57.4%) neonates had Apgar Score < 7 at 1 min and 24 (8.3%) neonates had apgar score < 7 at 5 min. (See Table-2) and both when cross tabulated with respect to age of the patients yielded insignificant results with p value 0.244 for Apgar score < 7 at 1 min and p value 0.900 for apgarscore < 7 at 5 min. Small sample size and being a single centered study were its main limitation and furtherresearch with a larger sample size is needed in this field.

Conclusion

This study demonstrated that oligohydramnios at term did not influence the outcomes in nulliparous women with unfavorable cervix.

Conflict Of Interest: None

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