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Original Research Article

Adverse Effects of Oligohydramnios on Mother and Foetus: A Hospital Based Study

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Abstract

Introduction: In a typical term pregnancy with isolated oligohydramnios, to investigate the outcomes for the mother and the foetus adequate quantities of amniotic fluid are essential for the growing foetus because they provide nutrition, protect the developing embryo from injury, and promote the baby's growth and mobility in the womb. Quantification of amniotic fluid content is an essential feature of prepartum foetal surveillance. Amniotic fluid is the end product of complex and dynamic physiological processes in the foetus and placenta.

Material and Methods: This was a one-year prospective research that took place in the obstetrics and gynaecology department of MKCG MCH, Berhampur between January and December of 2015. In all, 100 patients with gestational ages more than 37 weeks who were matched for age and parity were examined; 50 of the research group's participants had AFIs of less than 5, and the control group's participants had AFIs of greater than 5.A comparison was made between the two groups regarding the manner of delivery and the perinatal outcome. For statistical analysis, the chi square test was employed.

Results: In 39 patients (78%) in the study group and 46 patients (92%) in the control group, the non-stress test (NST) was reassuring (p value <0.05) and was determined to be statistically significant. In the research group, 16 out of 50 patients (32%) delivered their babies vaginally normally, 9 patients (18%) used an instrument, and 25 patients (50%) had a caesarean section. In the control group, on the other hand, 34 out of 50 patients (68%) delivered their babies vaginally normally, 2 patients (4%) used an instrument, and 14 patients (28%) had a caesarean section (p value <0.05). A statistically significant difference was detected. Nine (18%) of the study group's patients had an Apgar score of less than seven, compared to six (12%) of the control group (p value >0.05). The distinction wasn't statistically noteworthy. Ten babies (20%) in the control group and 22 babies (44%) in the experimental group were born weighing less than 2.5 kg (p value <0.05). There was a statistically significant difference. Neonatal intensive care unit (NICU) admissions occurred in 6 newborns (12%) in the study group compared to 4 babies (8%) in the control group (p value >0.05). There was no statistically significant difference. At the time of discharge, every baby was stable. Neither the trial group nor the control group had any infants that required ventilatory assistance or neonatal fatalities.

Conclusion: A poor perinatal outcome is not linked to isolated oligohydramnios in the absence of any aggravating factors, yet the babies may be born with a lower birth weight. Due to widespread use of ultrasonography, oligohydramnias are being discovered more frequently these days. Isolated oligohydramniosis without aggravating circumstances is not associated with a bad perinatal outcome, notwithstanding the possibility that the children would be delivered with a lower birth weight.

Keywords: Intrauterine Growth Limitation, Amniotic Fluid Index, and Isolated Oligohydramnios.

Introduction

Sufficient amounts of amniotic fluid are vital for the developing foetus because they act as a cushion against harm, offer nourishment, and encourage the baby's development and movement while still within the womb. Amniotic fluid volume quantification is a key component of prepartum

foetal monitoring. The result of intricate and dynamic foetal and placental physiological processes is amniotic fluid.

A single biggest pocket or maximum vertical pocket of less than 2 cm [2], an amniotic fluid index (AFI) of less than 5 cm [3], or an amniotic fluid volume less than the fifth percentile for that gestational age [1] are all considered indicators of oligohydramnios. It affects 12% of pregnancies at 41 weeks or beyond and 2.4% of pregnancies between 36 and 403, [4] weeks. Foetal discomfort, umbilical cord compression, and malpresentation may be caused by oligohydramnios in the third trimester. Numerous studies have linked oligohydraminos to higher rates of caesarean delivery [7], foetal discomfort, and unfavourable perinatal outcomes [8]. However, isolated oligohydramnios was not linked to a poor neonatal outcome, according to Zhang and colleagues' RADIUS trial database [9]. We made the decision to investigate the mother and foetal outcome in a typical term pregnancy with these contradictory reports in mind. Distinct oligohydrammoninos.

Material and Methods

This was a one-year prospective research that took place in the obstetrics and gynaecology department of MKCG MCH, Berhampur between January and December of 2015. A total of 100 patients with gestational ages more than 37 weeks who were matched for age and parity were examined; 50 women in the research group had AFIs under 5, whereas the control group had AFIs over 5.

Inclusion criteria

- AFI (for research group) of less than or equal to five.
- Cephalic appearance in a single live intrauterine gestation.
- 37–40 weeks of pregnancy
- Unbroken membranes

Exclusion Criteria

- Amniotic membrane rupture
- Multiple pregnancy
- Weeks of gestation <37 or >40
- Pregnancy at high risk, such as preeclampsia, gestational diabetes, or a history of caesarean delivery

Every prenatal low-risk patient who visited the OBG outpatient department at MKCG Medical College and had a gestational age of 37–40 weeks was given a standard ultrasound examination. Amniotic fluid index was determined by applying the method Phelan et al3. Following that, patients were assigned to either the study group (AFI<5) or the control group (AFI>5) based on their amniotic fluid index.

All patients provided written informed permission before a thorough physical examination, baseline tests, and a history of pregnancy and medicine were conducted. Both the research and control groups underwent non-stress testing (NST) upon admission. A C-section was performed in an emergency if the NST was unsatisfactory. The patient's labour progression was evaluated whether the NST was comforting. Intravaginal prostaglandin E2 (dinoprostone) gel was used to induce labour in cases when the patient was not in labour or had an unfavourable cervix. Dinoprostone was injected up to three times, separated by six hours, for induction. After the patient entered an active labour, the colour of the liquid was recorded and the artificial rupture of membranes (ARM) was performed at 3 cm dilation. To determine the WHO (World Health Organisation) Partogram's labor's advancement.

Electronic foetal monitoring was used to continuously track every instance. If contractions were insufficient, an oxytocin drip was initiated. Patients were brought up for emergency caesarean sections if there were late decelerations, prolonged bradycardia, or persistent tachycardia. The paediatrician looked after each and every newborn. At one and five minutes, the birth weight and agar score were recorded. The infant was admitted to the newborn intensive care unit (NICU) if the agar score was low or if they were experiencing respiratory distress. NST, induced or spontaneous labour, alcohol colour, birth method, agar score, NICU hospitalisation, requirement for ventilator assistance, and prenatal fatalities were among the several outcomes that were noted. For statistical analysis, the chi square test was employed.

Results

One hundred singleton pregnancies with cephalic presentation and gestational ages between 37 and 40 weeks were included in the study; fifty of the women (AFI <5) were assigned to the study group, and fifty of the women (AFI >5) were assigned to the control group.

Table 1: Demographic Characteristics in the Study and Control Group

Characteristics	Study group (AFI<5) n=50	Control group (AFI>5) n=50
Average Age in years	23.34	22.92
Primigravida	27 (54%)	29 (58%)
Multigravida	23 (46%)	21 (42%)
Average Gestational age in weeks	39.1	39.6

The above table shows that both the study and control groups are comparable in age, parity and gestational age.

Table 2: Comparison of Labour Outcome in both the Study and Control Groups

Outcome	Study group (AFI<5) n=50	Control group (AFI>5) n=50
Non stress test		
Reassuring	39 (78%)	46 (92%)
Non Reassuring	11 (22%)	04 (8%)
Mode of Delivery		
Normal vaginal	16 (32%)	34 (68%)
Instrumental delivery	09 (18%)	02 (4%)
Caesarean section	25 (50%)	14 (28%)
Colour of Liquor		
Clear	40 (80%)	41 (82%)
Meconium stained	10 (20%)	09 (18%)

Non stress test (NST) was reassuring in 39 patients (78%) in the study group and 46 patients (92%) in the control group (p value <0.05) and was found to be statistically significant.

Of the 50 patients in the study group, 16 (32%) had a normal vaginal delivery, 9 (18%) had an instrumental delivery, and 25 (50%) had a caesarean section. In the control group, on the other hand, 34 patients (68%) had a normal vaginal delivery, 2 patients (4%) had an instrumental delivery, and 14 patients (28%) had a caesarean section (p value <0.05). There was a statistically significant difference.

Nine individuals (18%) in the group with normal liquor volume and ten patients (20%) with oligohydramnios exhibited meconium stained liquid on ARM (p value >0.05). Two groups did not differ in a way that was statistically significant.

Table 3: Comparison of Neonatal Outcome in the Study and Control Groups

Outcome	Study group (AFI<5) n=50	Control group (AFI>5) n=50
APGAR Score		
Less than 4	01 (2%)	00
4-7	08 (16%)	06 (12%)
More than 7	41 (82%)	44 (88%)
Birth weight less than 2.5kg	22 (44%)	10 (20%)
NICU admission	06 (12%)	04 (8%)
Babies requiring Ventilatory support	00	00
Perinatal deaths	00	00

Nine patients (18%) in the research group and six patients (12%) in the control group had an Apgar score of less than seven (p value >0.05). There was no statistically significant difference. Ten babies (20%) in the control group and 22 babies (44%) in the experimental group were born weighing less than 2.5 kg (p value <0.05).

There was a statistically significant difference. Neonatal intensive care unit (NICU) admissions occurred in 6 newborns (12%) in the study group compared to 4 babies (8%) in the control group (p value>0.05).

There was no statistically significant difference. At the time of discharge, every baby was stable. Neither perinatal fatalities nor newborns in need of ventilator assistance occurred in any trial.

The mean gestational age was determined to be 38.1 ± 3.3 weeks, 37.5± 2 weeks, 34.3± 2.1 week, and 36.3± 2 weeks, respectively, by Evertt et al., 1992 and Iffath et al., 1991.This suggests that third trimester oligohydramnias are more prevalent. Comparable to earlier research, the study group's results showed that 16 of the 50 patients (32%) had a typical vaginal delivery, 9 patients (18%) had an instrumental delivery, and 25 patients (50%) had a caesarean section.

Poor NICU outcomes and APGAR scores were not statistically significant in either the study or control groups in our investigation. A research by Zhang et al. and colleagues demonstrated that there was no correlation between isolated oligohydramniosis and a higher rate of perinatal morbidity.

Discussion

In our survey, the average mother's age is 23.34 years. Research conducted in 1997 by Chauhan et al., 2004 by Jun Zhang et al., and 1992 by Everett et al. revealed that the average mother's age was 23.6±6.5 years, 23.4±.4 years, and 23.8 ± 5.7 years, separately. It was 23.9 years in the research by Casey et al. (2000) and 23.9 years in the study by Krishna Jagatia et al. (2013). When compared to multiparity, the incidence of primiparity in our study is high (54% in the study group and 58% in the control group), which is consistent with the 54% found in a study by Bhat et al. [8]. According to Donald D. et al. (2011), 60% of primigravidae had oligohydraminias.

The study's mean gestational age of 39.1 weeks is consistent to earlier research by Jun Zhang. In our survey, the average mother's age is 23.34 years. Research conducted in 1997 by Chauhan et al., 2004 by Jun Zhang et al., and 1992 by Everett et al. revealed that the average mother's age was 23.6±6.5 years, 23.4±.4 years, and 23.8 ± 5.7 years, separately. It was 23.9 years in the research by Casey et al. (2000) and 23.9 years in the study by Krishna Jagatia et al. (2013).

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According to Donald D. et al. (2011), 60% of primigravidae had oligohydraminias. The study's mean gestational age of 39.1 weeks is consistent to earlier research by Jun Zhang.

Conclusion

These days, oligohydramnias are being found more often as a result of routine ultrasonography use. Even though the kids may be born with a lower birth weight, isolated oligohydramniosis without any aggravating factors is not connected with a poor perinatal outcome.

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