

THE EFFECT OF UNCOMPLICATED OLIGOHYDRAMNIOS ON PERINATAL OUTCOME

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ABSTRACT

Objective: To evaluate the effect of oligohydramnios on perinatal outcome.

Study Design: A prospective cohort study.

Place and Duration of Study: The study was carried out at the Department of Obstetrics and Gynecology CMH Okara and PNS Shifa, Karachi from Jan 2014 – Dec 2014.

Patients and Methods: All at term (>37 weeks) gestation uncomplicated singleton pregnancies who were booked before 16 weeks of gestation, and had no associated medical illness were included in the study. Patients with history of premature rupture of membranes (PROM), previous history of preterm delivery or any associated medical illness were excluded from the study. The patients were divided into two groups. Group A consisted of the patients who met the inclusion criteria and had uncomplicated oligohydroamnios, and group B includes the patients with normal amniotic fluid volume (no oligohydroamnios). Perinatal outcome and demographic and socioeconomic features of both groups were compared.

Results: Total 226 women fulfilled the criteria and were recruited in the study with 106 in group A and 120 in group B. When the results of the two groups were compared, group A had low birth weight babies and were delivered at slightly earlier gestation and had higher incidence of meconium staining of liquor. They had higher caesarean section and induction rate as compared to group B. While there was no statistical difference in the APGAR score of the babies at birth or IUD rates and NICU admissions in the groups.

Conclusion: Isolated oligohydramnios at term is not associated with adverse perinatal outcome but there is low birth weight and increased rates of caesarean section and meconium staining associated with it.

Keywords: Oligohydramnios, Perinatal outcome, Term pregnancy.

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INTRODUCTION

Incidence of oligohydramnios is reported to be 0.5 to 5%^{1,2} depending upon the criteria used to define oligohydramnios. Oligohydramnios is either diagnosed accidentally on USG and has no associated complication or it is associated with one or more of obstetrical conditions like PROM, fetal growth abnormalities, pregnancy induced hypertension and fetal anomalies³. Each condition can predispose fetuses to adverse outcomes. Thus, it is not entirely clear whether the adverse perinatal outcomes reflect the sequel of these conditions or reduced amniotic fluid

volume itself contributes to adverse outcomes.

Oligohydramnios is often associated with improper placental function and hampered blood supply to the foetus, this is one of the major risks for increased perinatal mortality and morbidity associated with this condition^{4,5}.

Ultrasound scan is the main tool for assessing the volume of amniotic fluid, out of the different ways of measurement tried. Amniotic Fluid Index (AFI) remains widely accepted in obstetrical practice^{6,7}, and is considered the most reliable one. An AFI of <5 cm is considered diagnostic for oligohydramnios⁸.

It is considered to have an association with increased risk of adverse perinatal outcome, high caesarean section and instrumental delivery rates

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Received: 08 Apr 2015; revised received: 11 May 2015; accepted: 20 May 2015

possibly due to fetal distress, and meconium staining of liquor⁹.

The standard management of full term

electronic fetal monitoring and assessment tools during labour, there is limited work done and scarce data available on this subject.

Table-1: Comparison of demographic and socioeconomic features between the two groups.

Variables	Group A (oligohydramnios) (n=106)	Group B (no-oligohydramnios) (n=120)	p-value
Age (Mean ± SD)	27.25 ± 5.27	25.92 ± 6.83	0.106
Education (f (%))			
Uneducated	53 (50%)	62 (51.7%)	0.063
Primary	25 (23.6%)	15 (12.5%)	
Matric & Above	28 (26.4%)	43 (35.8%)	
Lifestyle (f (%))			
Sedentary	59 (55.7%)	55 (45.8%)	0.140
Active	47 (44.3%)	65 (54.2%)	

Table-2: Comparison of perinatal outcomes between the groups.

Variables	Group A (oligohydramnios) (n=106)	Group B (no-oligohydramnios) (n=120)	Relative Risk	95% CI	p-value
Low birth weight (frequency %)					
Yes	88 (83%)	11 (9.2%)	9.06	5.12 – 16.01	0.001
No	18 (17%)	109 (90.8%)			
Apgar score low at 1 min (frequency %)					
Yes	31 (29.2%)	28 (23.3%)	1.25	0.81 – 1.94	0.313
No	75 (70.8%)	92 (76.7%)			
Apgar score low at 5 min (frequency %)					
Yes	17 (16%)	14 (11.7%)	1.37	0.71 – 2.65	0.342
No	89 (84%)	106 (88.3%)			
Meconium Staining (frequency %)					
Yes	58 (54.7%)	4 (3.3%)	16.42	6.17 – 43.69	0.001
No	48 (45.3%)	116 (96.7%)			
IUD (frequency %)					
Yes	3 (2.8%)	01 (0.8%)	3.40	0.36 – 32.16	0.343
No	103 (97.2%)	119 (99.2%)			
Caesarean section (frequency %)					
Yes	77 (72.6%)	21 (17.5%)	4.15	2.77 – 6.23	0.001
No	29 (27.4%)	99 (82.5%)			

pregnancies with uncomplicated oligohydramnios is still debatable. The possibility of umbilical cord compression, uteroplacental insufficiency and meconium staining of liquor in oligohydramnios advocates early attempts on delivery¹⁰ compared to pregnancies with no oligohydramnios.

In Pakistan, a third world country with limited resources at large for continuous

This study was conducted to compare the perinatal outcome of term pregnancies with or without oligohydramnios.

PATIENTS AND METHODS

The prospective cohort study was conducted at Combined Military Hospital (CMH) Okara and Pakistan Navalship (PNS) Shifa, Karachi from Jan

to Dec 2014. It was approved by hospital ethical review committee.

All patients who were booked at or before 16 weeks of gestation, who were diagnosed to have uncomplicated pregnancy and did not have any associated medical illness were included in the study. The patients with history of premature rupture of membranes (PROM), previous history of preterm delivery or any associated medical illness were excluded from the study.

Two hundred and twenty six patients fulfilling the inclusion criteria were included in the study through non-probability convenience sampling. These patients were divided into two groups, one with isolated oligohydramnios at or after 30 weeks ultrasound scan (group-A) and the other one without oligohydramnios (group-B).

The criteria to label oligohydramnios was AFI < 5 cm or less than 5th centile for the gestation.

One hundred and six patients were included in group A while 120 patients were included in group B. Demographic variables and perinatal outcomes of the two groups were compared.

Data was analyzed through SPSS version 17. Mean and standard deviation were described for quantitative variables while frequency along with percentages were described for qualitative variables. Independent samples' t-test was applied to compare quantitative variables and Chi-square/Fisher's exact test was applied to compare qualitative variables between the two groups. A p -value < 0.05 was considered significant.

RESULTS

The demographic and socio-economic features between the two groups were compared (table-1). There was insignificant difference between the two groups in terms of age group, educational status or the type of lifestyles.

Perinatal outcome of the two groups were also compared (table-2). In group A low birth weight was found in 83% newborns compared to only 9.2% in group B (p <0.001). Meconium staining of liquor at amniotomy was significantly

higher in group A as compared to group B (p <0.001). Caesarean section rate was significantly higher in group A as compared to group B (p < 0.001).

However, APGAR score at 1 min and 5 min and number of IUDs were similar between the two groups.

DISCUSSION

The study results show that the rate of caesarian section and meconium staining of amniotic fluid is higher in term pregnancies with isolated oligohydramnios. On the contrary there is no association found between low APGAR score at 1 min and 5 min or number of intrauterine deaths with oligohydramnios AFI < 5 cm.

When compared to normal amniotic fluid volume group women with oligohydramnios had significantly low birth weight neonates which were born at comparatively earlier gestation (but all were > 37 weeks of gestation).

It might be given a consideration that increased caesarean section rates, both emergency and elective, were because of early interventions, triggered by oligohydramnios either due to the departmental policy or due to obstetricians attitude. In a systematic review Morris and colleagues found out that one of the main problem in the interpretation of data was that the managing obstetricians knew which patients had oligohydroamnios and which had not, meaning that they were not blinded to the amniotic fluid assessment results and in a few of them induction of labour for isolated oligohydroamnios was specifically mentioned in the policy of the department or the institute. For this reason all those who had oligohydroamnios were induced at term resulting in more obstetrical interventions and high caesarean section rates in that group¹¹. In another study it is suggested that the presence of oligo hydroamnios may influence the treating obstetrician to perform obstetrical interventions which may not be needed as suggested by normal perinatal outcomes¹².

The largest multicentre randomized=Routine Antenatal Diagnostic Imaging with Ultrasound (RADIUS) trial also reconfirms that isolated oligohydramnios is not associated with increased risk of adverse perinatal outcome¹³. The RADIUS trial revealed that doing ultrasound scan at advanced gestation for diagnosing oligohydramnios in otherwise low risk pregnancies will not help to improve maternal and fetal outcomes to clinically significant levels.

Hina has also revealed in her study that there is no association between reduced amniotic fluid volume and adverse perinatal outcome however the caesarean section rates and rates of elective induction of labour increases when compared to normal term pregnancies in the local population in Pakistan¹⁴.

There is no evidence which suggest that systematic assessment of amniotic fluid volume and identification of isolated oligohydroamnios in term pregnancies improve the perinatal outcomes. In one of the reviews it is shown that oligohydroamnios in otherwise uncomplicated term pregnancies may lead to two fold rise in caesarean section rates and the risk of obstetrical interventions. However this should be kept in mind that fetal distress in cases of oligohydroamnios does not increase the rate of neonatal intensive care unit (NICU) admissions, neither does it increase the risk of low umbilical artery pH or neonatal mortality rates compared to pregnancies with no oligohydroamnios^{15,16}.

CONCLUSION

Isolated oligohydramnios in term pregnancies is not associated with increased risk of adverse perinatal outcome however there is an increased rate of obstetrical interventions and caesarean section. It is still under debate that whether the interventions done are decided on the basis of objective abnormalities in fetal heart rate pattern or are done because of individual

obstetricians' choice and practice. The need of the day is a randomized controlled trial in which patients with oligohydramnios should be managed by expectant versus active management at term, the managing obstetricians should be blinded of the results of amniotic fluid assessment and sample size should be large enough in order to get appropriate unbiased results.

CONFLICT OF INTEREST

This study has no conflict of interest to declare by any author.

REFERENCES

- Hill LM, Breckle R, Wolfgram KR, O'Brien PC. Oligohydramnios; ultrasonically detected incidence and subsequent foetal outcome. *Am J Obstet Gynecol* 1983;147:407-10.
- Mercer LJ, Brown LG, Petres RE, Messer RH. A survey of pregnancies complicated by decreased amniotic fluid. *American Journal of Obstetrics and Gynaecology* 1994;149:355-61.
- McCurdy CM, Seeds JW. Oligohydramnios: problems and treatment. *Semin perinatol* 1993;17:183-96.
- Chauhan SP, Sanderson M, Hendrix NW, Magann EF, Devoe LD. Perinatal outcome and amniotic fluid index in the antepartum and intrapartum periods: a meta-analysis. *Am J Obstet Gynecol* 1999; 181:1473-78.
- Rayburn WF, Motely ME, Stempel LE, Gendreau RM. Antepartum prediction of the postmature infant. *Obstet Gynecol* 1982;60:148-53.
- Magann EF, Nolan TE, Hess LW, Martin RW, Whitworth NS, Morrison JC. Measurement of amniotic fluid volume: accuracy of ultrasonography techniques. *Am J Obstet Gynecol* 1992;167(6):1533-7.
- Morris JM, Thompson K, Smithey J et al. The usefulness of ultrasound assessment of amniotic fluid in predicting adverse outcome in prolonged pregnancy: a prospective blinded observational study. *Br J Obstet Gynaecol* 2003;110:989-94.
- Phelan JP, Smith CV, Broussard P, Small M. Amniotic fluid volume assessment using the four-quadrant technique in the pregnancy between 36 and 42 weeks gestation. *J Reprod Med* 1987;32:601-4.
- McCurdy CM Jr, Seeds JW. Oligohydramnios; problems and treatment. *Semin Perinatol* 1993;17:183-96.
- Locatelli A, Vergani P, Toso L, Verderio M, Pezzulo JC, Ghidini A. Perinatal outcome associated with oligohydramnios in uncomplicated term pregnancies *Arch Gynecol Obstet* 2004;269:130-3.
- Morris R, Melder CH, Tamblyn J et al. Association and prediction of amniotic fluid measurements of adverse pregnancy outcome: systematic review and meta-analysis. *BJOG* 2014;121(6):686-99.
- Elsandabesce D, Majumdar S, Sinba S. Obstetricians attitude towards 'isolated oligohydroamnios' at term. *Journal of Obstetrics and Gynaecology* 2007;27:574-6.
- Zhang J, Troendle J, Meikle S, Klebanoff MA, Rayburn WF. Isolated oligohydramnios is not associated with adverse perinatal outcomes. *BJOG* 2004; 111:220-5.
- Hina A, Shama M. Isolated oligohydramnios is not an indicator for adverse perinatal outcome. *J Pak Med Association* 2009; 59:691.
- Rossi AC, Prefumo F. Perinatal outcomes of isolated oligohydroamnios at term and post term pregnancy: a systematic review of literature with meta-analysis. *Eur J Obstet Gynecol Reprod Biol*: 2013;169(2):149-54.
- Moore TR. The role of amniotic fluid assessment in indicated preterm delivery. *Semin Perinatol* 2011;35(5):286-91