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A study on perinatal outcome in oligohydramnios

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Abstract
Background: In Normal Pregancies, the volume of amniotic fluid increases to about one litre at 36 weeks maximum level. Amniotic fluid volume rises progressively during gestation until 36 weeks, the mean amniotic fluid volume relatively consistent in the level of 700-800ml. After 40 weeks there is a progressive decline of amniotic fluid volume at a rate of 8% per week, with amniotic fluid volume averaging about 400ml at 42 wks. The clinical picture of reduced amniotic volume is termed oligohydramnios. This present study is undertaken to asses the perinatal outcome in Amniotic fluid index of 5 cm or less (oligohydramnios) in term pregnancies.
Objective: To determine the perinatal outcome in term pregnancies with Amniotic fluid index ≤5 cm.
Methodology: A prospective study on the perinatal outcome in term pregnancies with Amniotic fluid index ≤ 5 cm & control group amniotic fluid index >5cms was carried out in, Government Kilpauk Medical College Hospital during the period of February 20016 to January 2017.
Sample Size: About 150 cases in AFI ≤ 5cms (Study Group) And 150 Cases in Control Group (AFI > 5cms).
Results: In this study perinatal outcome in AFI 5cm or less compared with control group. About 150 cases were studied in each group. 87% in study group & 93% in control group were in the age group 20 - 30yrs.
Conclusion: Oligohydramnios with reactive NST is associated with good prognosis (Good apgar, decreased NICU admission & neonatal death).
Oligohydramnios with non reactive NST needs careful monitoring and eventuates in early delivery. It increases the incidence of caesarean delivery for fetal distress, NICU admission, low apgar at 5 mins and Neonatal death.
Oligohydramnios associated with IUGR carries a poor perinatal outcome (Increased neonatal death, NICU admission, increased rate of CS for fetal distress, very low birth weight) Hence they need good neonatal care.

Keywords: Oligohydramnios, AFI, IUGR and perinatal outcome

Introduction
Liquor amnii, a fluid elaborated by amnion a two layered extra embryonic membrane formed by inner ectoderm and outer somatic mesoderm provides fluid medium for the early development of the embryo protecting it from concussion, pressure, dessiccation, reminiscent of the aquatic origin of life.
Adequate amount of amniotic fluid is essential for the normal growth of the fetus for, it cushions against all sorts of trauma and agitations. Its bacteriostatic properties prevents infection and it functions as a primary source of fetal Nutrients.
In Normal Pregancies, the volume of amniotic fluid increases to about one litre at 36 weeks maximum level. Amniotic fluid volume rises progressively during gestation until 36 weeks, the mean amniotic fluid volume relatively consistent in the level of 700-800ml. After 40weeks there is a progressive decline of amniotic fluid volume at a rate of 8 %per week, with amniotic fluid volume averaging about 400ml at 42 wks. The clinical picture of reduced amniotic volume is termed oligohydramnios.
Using amniotic fluid index of less than 5cm the incidence of oligohydramnios was found to be 2.3% after 34 weeks. Oligohydramnios was associated with increased risk of adverse perinatal outcome. The umbilical cord compression during labour is common with oligohydramnios which increases the risk for caesarean delivery for fetal distress and 5 minute apgar score less than 7 (Chauhan, 1999).

The decrease of amniotic fluid volume is associated with the increased labour induction, still birth, non reassuring fetal heart pattern, meconium aspiration syndrome and neonatal death.
This present study is undertaken to asses the perinatal outcome in Amniotic fluid index of 5 cm or less (oligohydramnios) in term pregnancies.

Objective: To determine the perinatal outcome in term pregnancies with Amniotic fluid index ≤5 cm.

Methodology: A prospective study on the perinatal outcome in term pregnancies with Amniotic fluid index ≤ 5 cm & control group amniotic fluid index >5cms was carried out in**,** Government Kilpauk Medical College Hospital during the period of February 20016 to January 2017.

Sample size: About 150 cases in AFI ≤ 5cms (Study Group) And 150 Cases in Control Group (AFI > 5cms).

Results: In this study perinatal outcome in AFI 5cm or less compared with control group.
About 150 cases were studied in each group. 87% in study group & 93% in control group were in the age group 20 - 30yrs.

Observation
The present study is under taken to study the outcome of term pregnancy with amniotic fluid index 5 cm or less (study group) and control group >5 cm Total numbers of patients selected were 150 cases in each group.

Table 1: Induction of Labour.

AFI ≤5cm NO	%		Control group NO %	
No. of Induction	48	42	38	25
Vaginal delivery	12	25	26	68
LSCS	36	75	12	32

X2 = 16.21P = 0.001 CI (2.3-19) Induction of labour is 42% vs 25% in AFI < or =5cm and control group.

Table 2: Birth Weight

Birth weight	AFI≤ 5cm		Control group		Total
	No	%	No	%	
>3kg	16	11	29	19	45
2.5-3kg	72	48	83	55	155
2-2.5	24	16	25	17	49
<2	28	18	8	5	36

X2 = 15.6 P = 0.001

About 18% of babies in AFI≤5cm are below 2kg only 5% of babies in control group are below 2kg. The difference was found to be significant (P = 0.001).

Table 3: Apgar Score

Apgar @ 5 Minutes	AFI 5cm or Less No %		Control Group No %	
≤ 4	5	3	1	0.6
<7	16	11	2	2
>7	134	88	148	98

X2 = 9.99 P = 0.001OR = 8.8 (2-56)

In study group 11% had apgar less than 7@ 5 minutes and in control group 2% had apgar less than 7@5 minutes. The difference was found to be significant. (P=0.001)

Table 4: Neonatal Outcome

NST	AFI ≤5cm		Control group		
	No	%	No	%	
Reactive	101	67	126	84	
Neonatal					
Death	2	2	-	-	X2=9.3
Non-Reactive	49	33	24	16	P=0.02
					OR=8(2-40)
Neonatal death	7	14	1	-	
Total Neonatal death	9	6	1	0.3	Z=2.29 P=0.02

In AFI≤5cm about 67% of patients had reactive NST and 33% had non reactive NST.
In control group, about 84%of patients had reactive NST and 16% had non reactive NST. The difference was found to be significant. (P=0.002)

Table 5: Neonatal Outcome

	AFI≤5cm		Control group		
	No	%	No	%	
NICU admission	69	46%	25	17%	Z=5.28 P=0.001
Discharged	60	87%	24	96%	
Preterm	10	7%	4	3%	
IUGR	9	26%	10	%	
Neonatal death	9	6%	1	0.3%	

In AFI < or = 5 cm, 46% of babies had NICU admission, 87% of babies were discharged. 6% of neonatal death.
In control group 17% 0f babies had NICU admission 96% of babies were discharged. 0.3% neonatal death. The difference was found to be significant.

Table 6: Peri Natal Outcome In Afi < 5cm

	Reactive NST No %		Non reactive NST No %		
Mode of					
delivery					
Vaginal	45	45	10	20	X2= 8.28
					P=0.004
LSCS	56	55	39	80	OR=3.1 (1-7.6)
Apgar @ 5 min					
1. Less than 7	5	5	11	22	X2=10.6
					P=0.001
2. > 7	96	95	38	78	OR=5.6 (1.6-20)
NICU admission	37	37	32	65	Z=3.05 P=0.002 CI=28%
Neonatal Death	2	2	7	14	Z=1.82 P=0.02 CI=9%

In study group reactive NST is compared with NR NST.

1. In Reactive NST 45% has vaginal, 55% had LSCS Non-reactive NST 20% had vaginal 80% had LSCS The difference was found to be significant (P=0.004).
2. In Reactive NST 5% had Apgar less than 7@ 5 min Vs 22% in NR NST. The difference was found to be significant (P=0.001).
3. In Reactive NST 37% had NICU admission, about 65% in NR NST group had NICU admission. The difference was found to be significant. (P=0.002).
4. In Reactive NST 2% had Neonatal Death. 14% of Non reactive NST had Neonatal. Death. The difference was found to be significant. (P=0.02).

Table 7: Control Group

	Reactive NST No %		Non Reactive NST No %		
Mode of					
delivery	86	68	8	33	X2 = 10.51
Vaginal					P = 0.001
	40	32	16	67	
LSCS					
Apgar @ 5 min					
1.Less than 7	1	0.8	2	8	X2 = 5.85
					P = 0.02
2.> 7	125	99.2	22	91	
NICU admission	16	13	9	38	
Neonatal Death	-	-	1	4	Z = 2.58 P = 0.10

The risk of apgar less than 7 @ 5 min is 8% in NRNST and 0.8 in reactive NST.

Summary

In this study perinatal outcome in AFI 5cm or less compared with control group.

About 150 cases were studied in each group.

- 87% in study group & 93% in control group were in the age group 20 - 30yrs.
- In study group 37% had vaginal & 63% has LSCS (22% were repeat LSCS). In control group 63% had vaginal & 37% had LSCS delivery (39% were Repeat LSCS).
- The risk of CS for fetal distress found to be higher in study group than control (32 Vs 11%) The difference was found to be significant (P=0.05).
- In study group, induction was found to be higher than control (42% Vs 25%). The difference was found to be significant. (P=0.003).
- Meconium stained liquor was 46% in study group, 25% in control group. The difference was not significant (P=0.17).
- In study group 11% had apgar score <7 @ 5 min Vs 1% in control group. The difference was found to be significant. (P=0.001).
- In study group 18% of babies were less than 2 kg, 5% in control group were less than 2 kg. The difference was found to be significant. (P=0.001).
- In study group about 67% had reactive NST & 33% had NR NST. In Control group 84% had Reactive NST, 16% had Non reactive NST. (P=0.002).
- In Oligohydramnios (Study Group)

The risk of apgar less than 7 at 5 minutes is high in Non reactive NST (22%) Vs 5% in Reactive NST.

The risk of NICU admission was found to be high in Non-reactive NST (65%) Vs 37% in Reactive NST. The difference was found to be significant. (P= 0.002).

Neonatal death is 12% in Non-reactive NST and 3% in Reactive NST. The difference was found to be significant. (P = 0.02).

In control group - the risk of apgar less than 7@ 5 min is only 8% in Non reactive NST and 0.8 in reactive NST.

The risk of NICU admission is 38% in Non-Reactive NST, 13% in Reactive NST. The difference was found to be significant. (P=0.02).

Conclusion

- Oligohydramnios is associated with adverse perinatal outcome.
- Oligohydramnios with reactive NST is associated with good prognosis (Good apgar, decreased NICU admission & neonatal death).
- Oligohydramnios with non reactive NST needs careful monitoring and eventuates in early delivery. It increases the incidence of caesarean delivery for fetal distress, NICU admission, low apgar at 5 mins and Neonatal death.
- Oligohydramnios associated with IUGR carries a poor perinatal outcome (Increased neonatal death, NICU admission, increased rate of CS for fetal distress, very low birth weight) Hence they need good neonatal care.

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