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Study of Prevalence of Oligohydramnios among the Third Trimester Pregnant Women and its Perinatal Outcome

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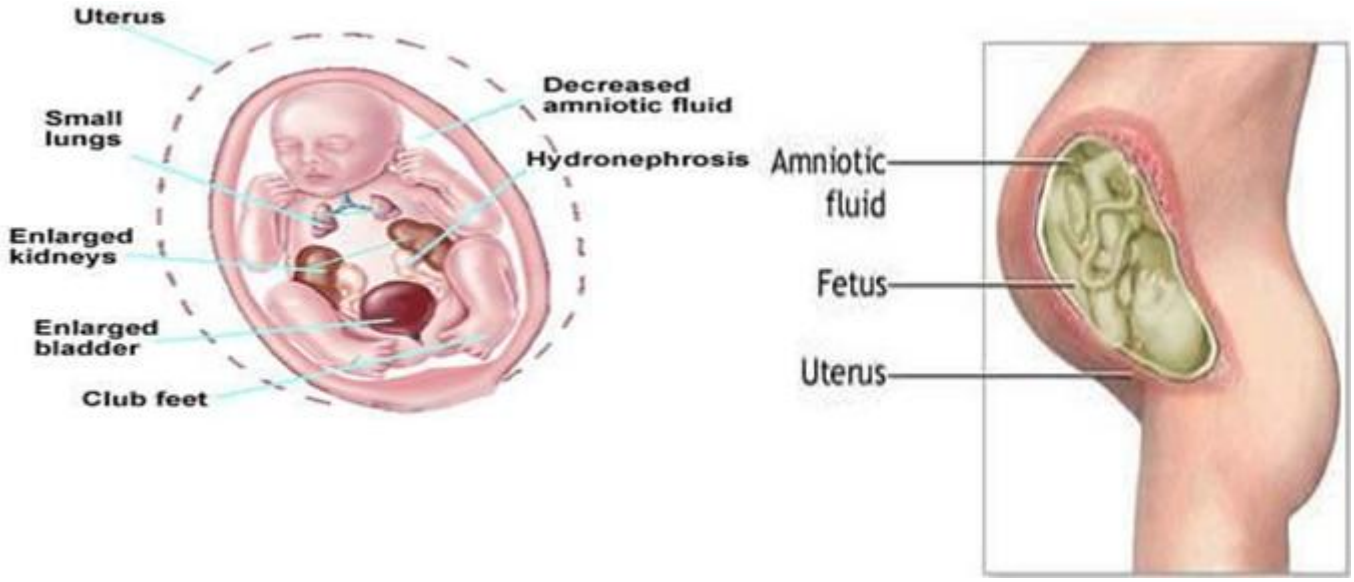
Abstract: ***Introduction: Oligohydramnios refers to reduced amniotic fluid expected for that gestational age. Ultrasound examination is diagnostic and may be described qualitatively (e.g.; normal or reduced) or quantitatively (eg; amniotic fluid index AFI < 5cm). For normal fetal movements and growth and to cushion the fetus and umbilical cord, adequate volume of amniotic fluid is critical. Methodology and results: it was a descriptive study in Department of Obstetrics and gynecology, Umaid Hospital, Jodhpur of Patients attending the Outpatient clinics, Antenatal ward, Labourward of the Department of Obstetrics and gynecology, Umaid Hospital, Dr. S. N. Medical College, Jodhpur. Conclusion: Oligohydramnios is being detected more often these days, due to routinely performed obstetric ultrasonography. In my study I have observed that Gestational hypertension and post dated pregnancies are the commonest causes of reduced amniotic fluid during third trimester. Oligohydramnios is found most commonly found in the primigravidas.***

Keywords: perinatal outcome, oligohydramnios, pregnancy

1. Introduction

Oligohydramnios refers to reduced amniotic fluid expected for that gestational age. Ultrasound examination is diagnostic and may be described qualitatively (eg; normal or reduced) or quantitatively (eg; amniotic fluid index AFI < 5cm). For normal fetal movements and growth and to cushion the fetus and umbilical cord, adequate volume of amniotic fluid is critical.

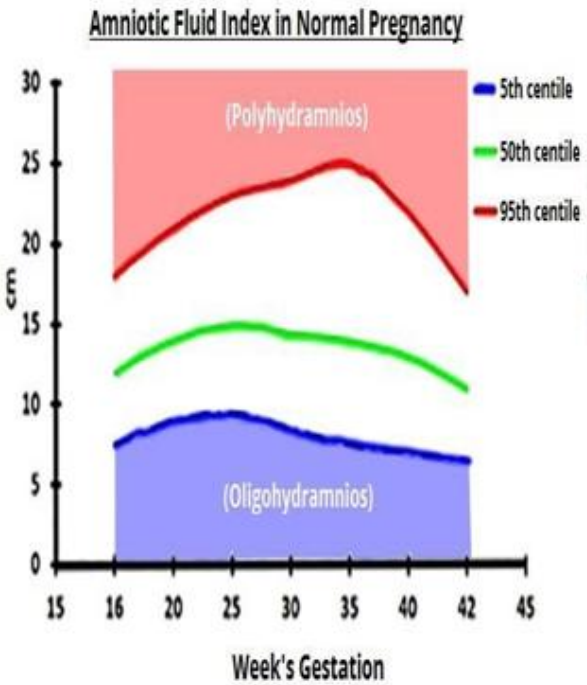
Oligohydramnios may inhibit these processes and can lead to fetal deformation, umbilical cord compression, and death. Oligohydramnios sequence, or Potters syndrome, is a chain of events that results in severe abnormalities of the fetus. Not all fetuses develop abnormalities due to low levels of amniotic fluid. The occurrence of oligohydramnios sequence depends on few factors, the stage of pregnancy and the level of amniotic fluid. The later stages of pregnancy appear to be troublesome. If oligohydramnios sequence occurs at that time, a more serious condition can occur.

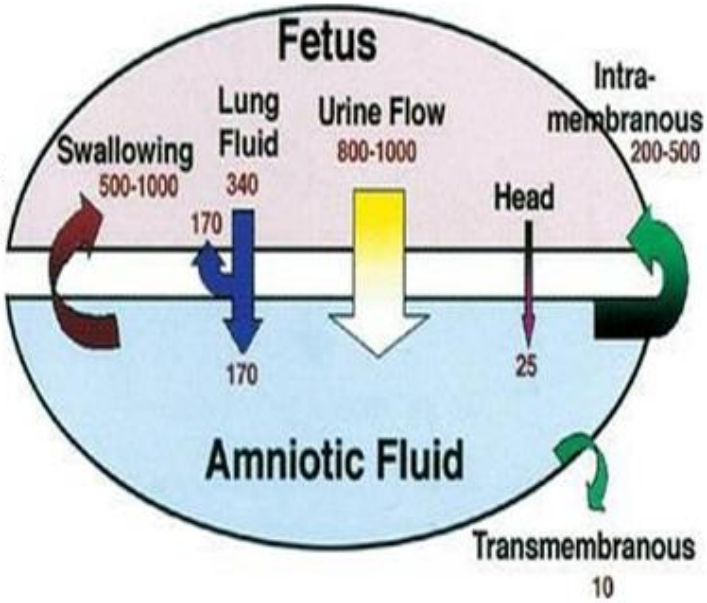


ligohydramnios is a relatively common complication of pregnancy. Etiologies include congenital anomalies, intrauterine growth retardation, premature rupture of membranes, drugs, post term pregnancy. Sequel from prolonged oligohydramnios includes pulmonary hypoplasia and fetal compression syndrome which can be devastating. Perinatal morbidity and mortality are both significantly increased in pregnancies complicated by oligohydramnios. Successful management requires a thorough search for the cause of the decreased amniotic fluid volume, and close

antenatal surveillance.

As a complication, oligohydramnios is present in approximately 4.5 % of all pregnancies and severe oligohydramnios is present in 0.7% of pregnancies. Beyond term, oligohydramnios is more common in pregnancies, as the amniotic fluid volume normally decreases at term.12% of pregnancies are complicated by oligohydramnios beyond 41 weeks.





Causes of Oligohydramnios

The common causes of oligohydramnios; divided into three factor

Maternal Factors (uteroplacental insufficiency)
- Hypertensive disorders of pregnancy
- Nephropathy due to Diabetes
- Reduced fluid intake
- ACE Inhibitors like drugs
- Collagen vascular disease
- Morbid obesity

Placental Causes
- Insufficiency of placenta or dysfunction
- Abruptio placenta
- Thrombosis and infarction of placenta
- Uteroplacental insufficiency

Fetal Causes
- Abnormality of Gastrointestinal tract
- Preterm Rupture of fetal membranes.
- Anomalies like Hydrocephalus
- Prolonged or post dated pregnancy
- Oligohydramnios in the first trimester – Chromosomal abnormalites
- Twins pregnancy – twin to twin transfusion syndrome
- Insufficiency of placenta or dysfunction
- Abruptio placenta
- Thrombosis and infarction of placenta
- Utero placental insufficiency

Risk Factors of Oligohydramnios
- High blood pressure
- Diabetes mellitus
- Disorders of placenta
- SLE
- Obesity complicating

To describe OLIGOHYDRAMNIOS in terms of
- Age and Parity wise distribution,
- Gestational age wise distribution,
- Associated maternal complications

Maternal morbidity in the form of mode of delivery.

To describe perinatal morbidity in terms of by birth weight APGAR score

2. Materials and Methods

Study Design: Descriptive study

Place of the Study: Department of Obstetrics and gynecology, Umaid Hospital, Jodhpur

Study Population:
Patients attending the Outpatient clinics, Antenatal ward, Labourward of the Department of Obstetrics and gynecology, Umaid Hospital, Dr. S. N. Medical College, Jodhpur.

Study Period: 6 month

Inclusion Criteria:
1) USG proven cases of oligohydramnios with AFI < 5cm

2) With gestational age more than 28 weeks
3) Singleton pregnancy

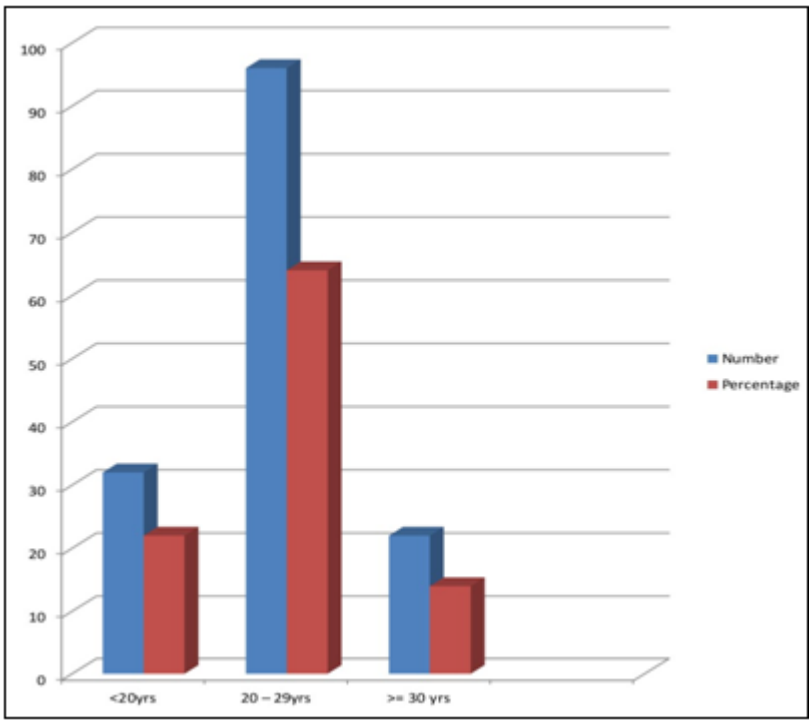
Exclusion Criteria:

1) AFI > 6cm
2) Spontaneous rupture of membranes
3) Multiple gestation

3. Observations and Results

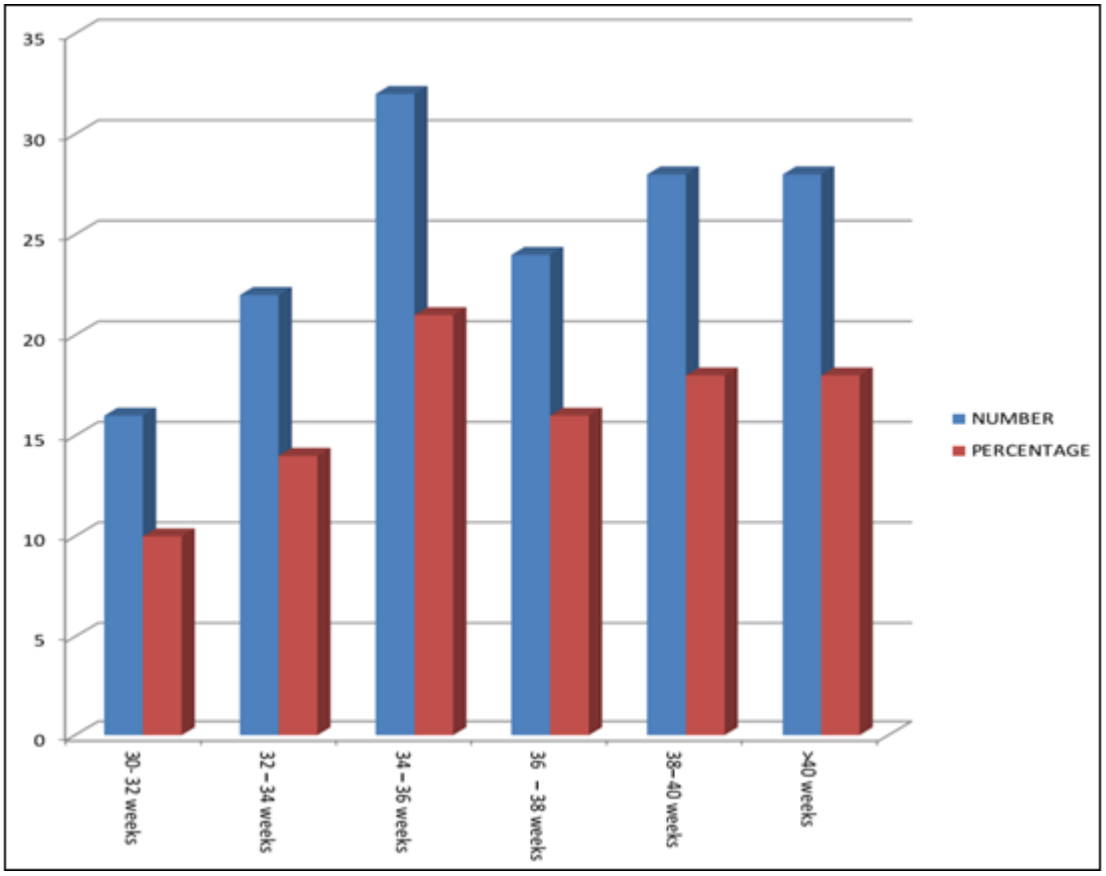
1) Distribution according to age:

Age groups	Number	Percentage
<20yrs	32	22
20 – 29yrs	96	64
>= 30 yrs	22	14
Total	150	100



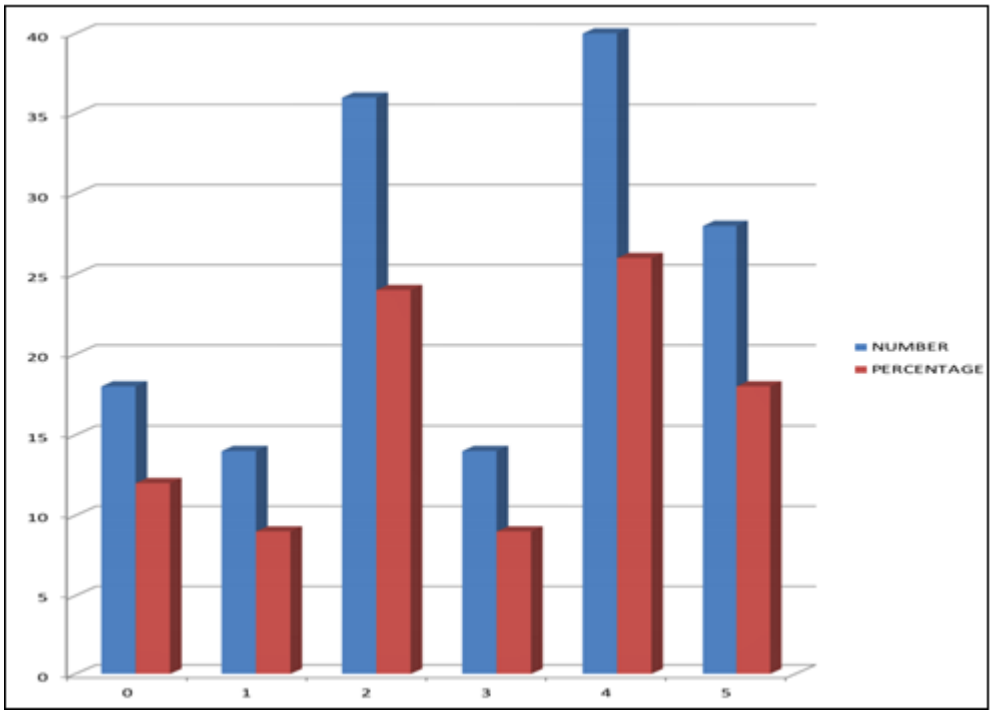
2) Distribution according to gestational age

Gestational Age	Number	Percentage
30 - 32 weeks	16	10
32 – 34 weeks	22	14
34 – 36 weeks	32	21
36 – 38 weeks	24	16
38– 40 weeks	28	18
>40 weeks	28	18



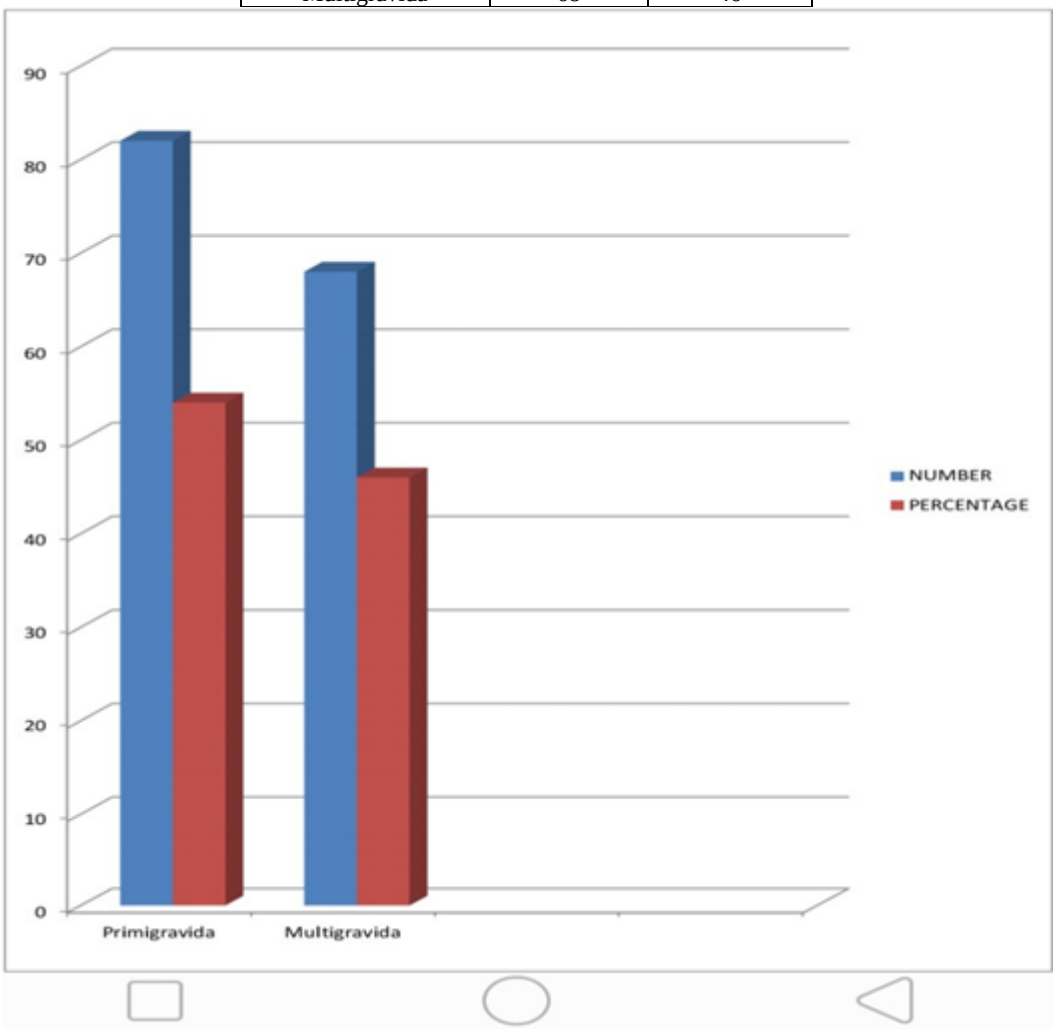
3) Distribution according to Amniotic Fluid Index:

Amniotic Fluid Index	Number	Percentage
0	18	12
1	14	9
2	36	24
3	14	9
4	40	26
5	28	18



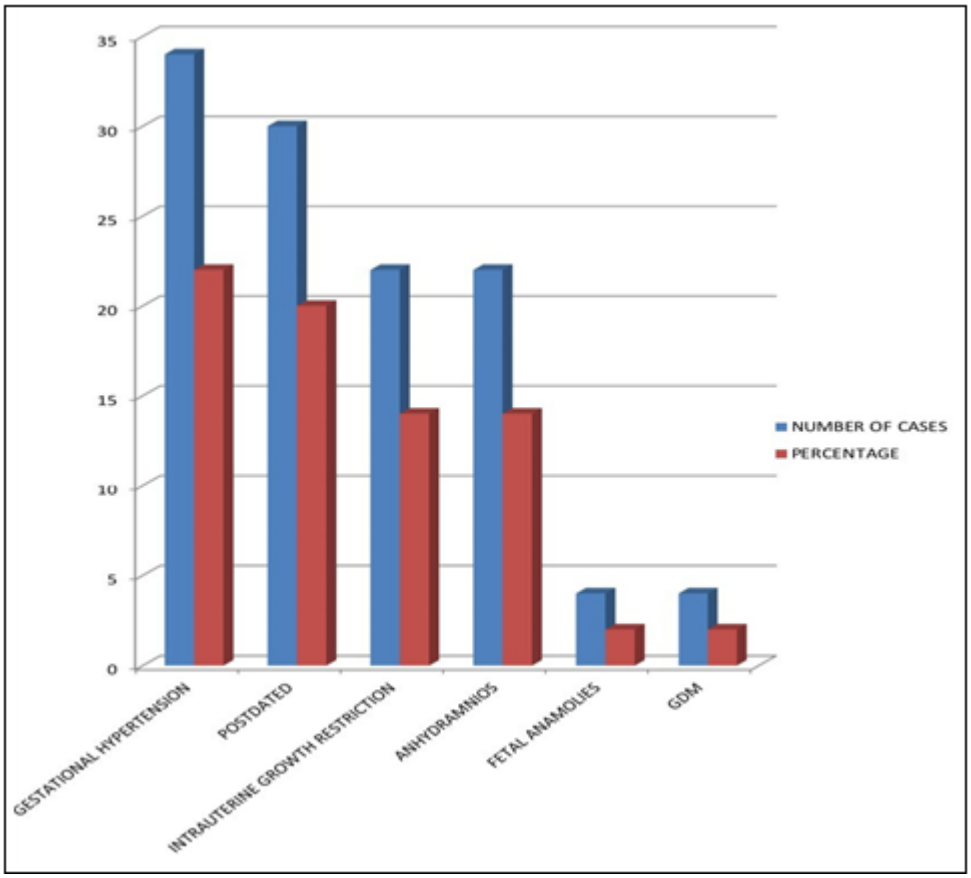
4) Distribution according to Parity:

Parity	Number	Percentage
Primigravida	82	54
Multigravida	68	46



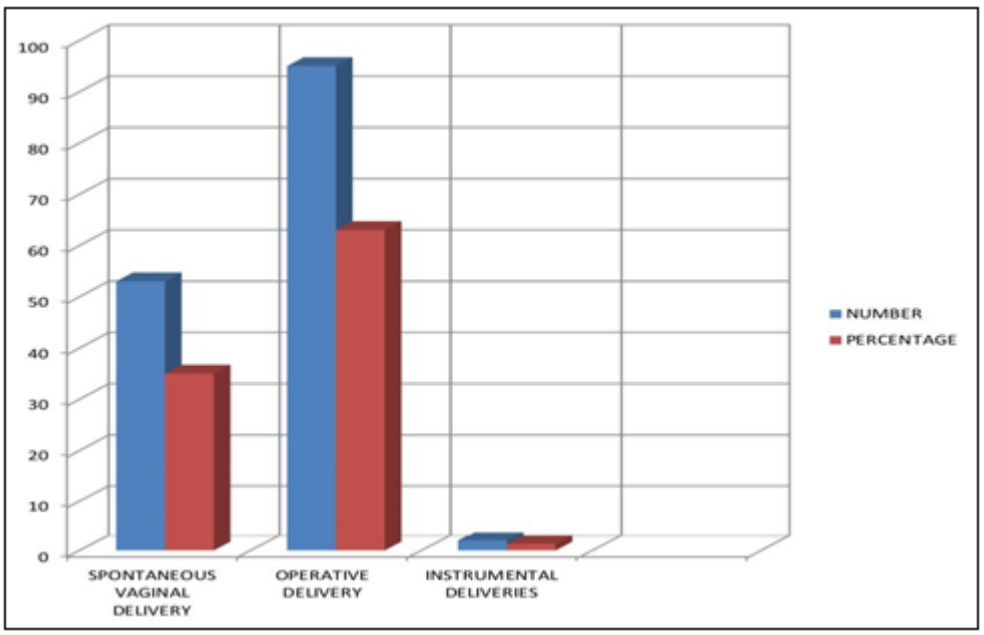
5) Distribution according to Maternal Complications:

Maternal Complications	Number of Cases	Percentage
Gestational Hypertension	34	22
Postdated	30	20
Intrauterine Growth Restriction	22	14
Anhydramnios	22	14
Fetal Anamolies	4	2
GDM	4	2



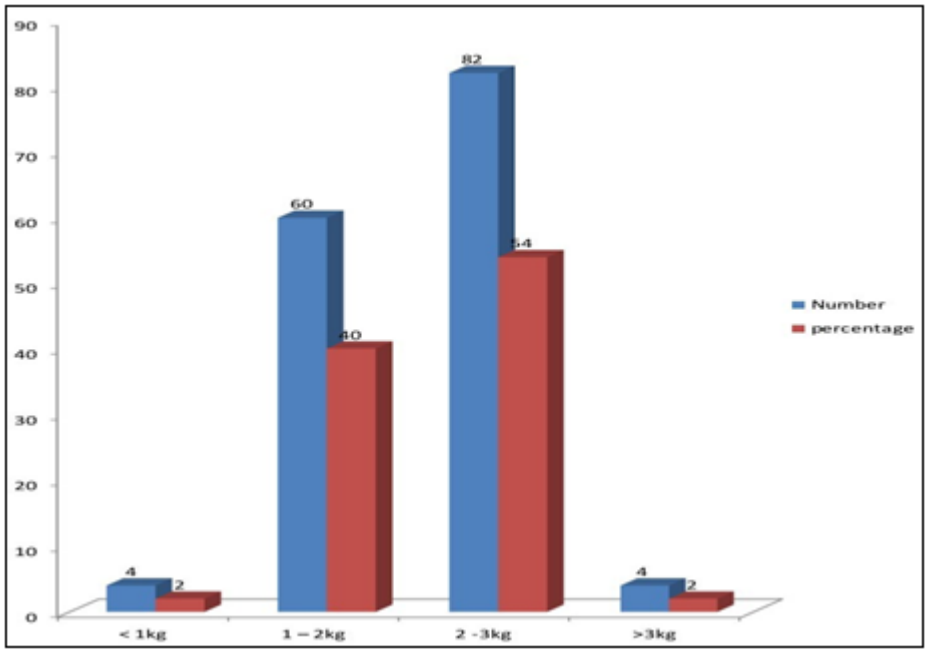
6) Distribution according to mode of delivery

Mode of Delivery	Number	Percentage
Spontaneous Vaginal Delivery	53	35
Operative Delivery	95	63
Instrumental Deliveries	2	1.3



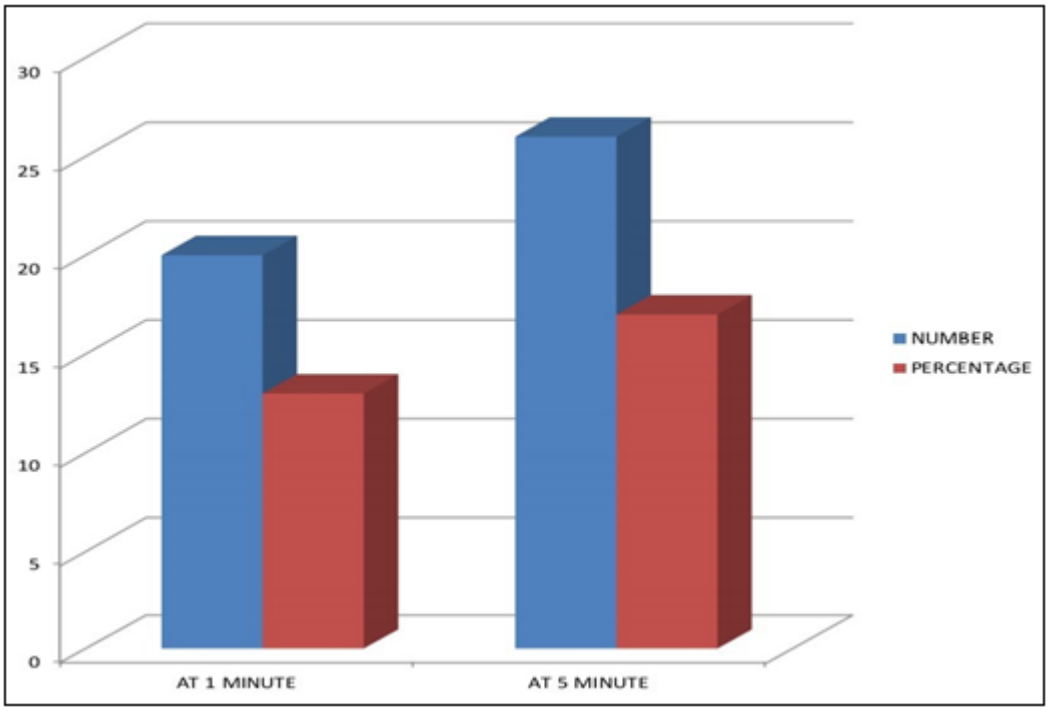
7) Distribution according to Birth Weight:

Birth weight	Number	Percentage
< 1kg	4	2
1 – 2kg	60	40
2 - 3kg	82	54
>3kg	4	2



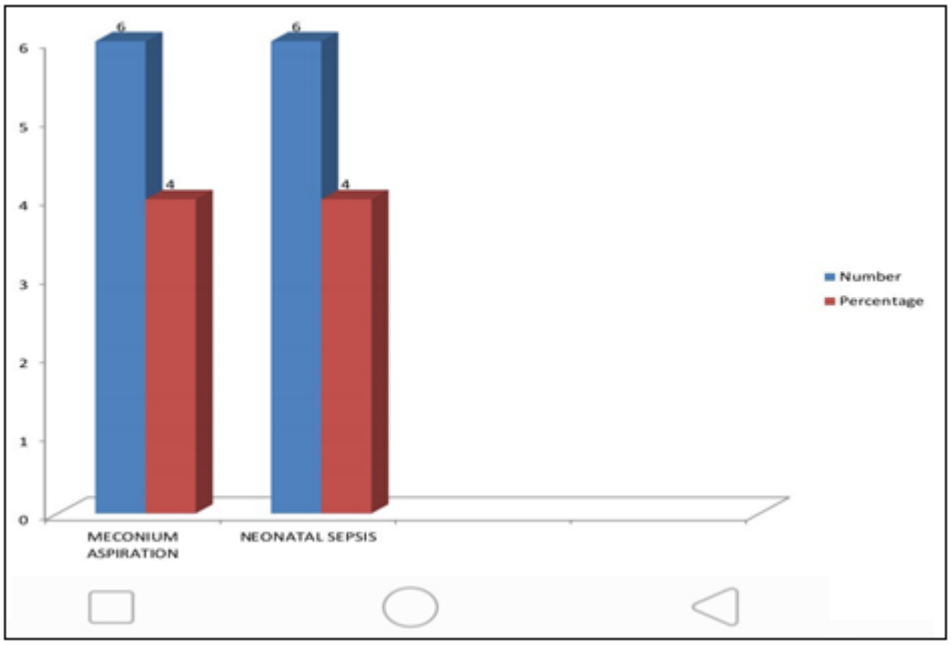
8) Distribution according to APGAR score:

APGAR Score	Number	Percentage
At 1 Minute	20	13
At 5 Minute	26	17



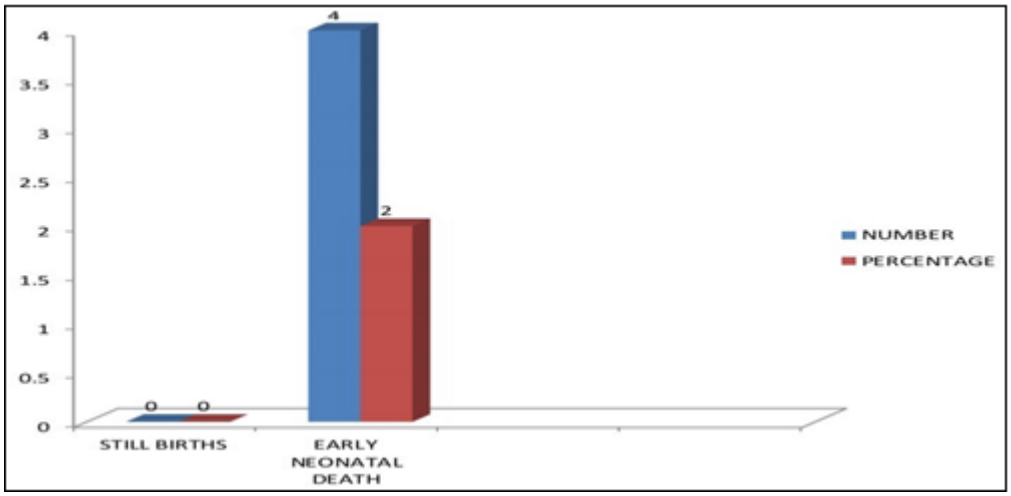
9) Distribution according to Neonatal Morbidity

Neonatal Morbidity	Number	Percentage
Meconium Aspiration	6	4
Neonatal Sepsis	6	4



10) Distribution according to perinatal mortality

Perinatal Mortality	Number	Percentage
Still Births	0	0
Early Neonatal Death	4	2



4. Discussion

In the present study, 64% of cases were in the age group 20 to 29 years, as compared to other age groups, reflecting the child bearing of most of the women with the mean maternal age of 22.8± 4.2 years

In the present study, the incidence of oligohydramnios was 0.8%. Similar study by Jun Zhang et al reported the incidence as 1.5%. Divon M et al found oligohydramnios in 1.2% in their cases. Casey B et al found that 2.3% cases were complicated by oligohydramnios. Elliot H et al found that the incidence of oligohydramnios 3.9% in their study. Varma T R et al found that the incidence was 3.1% in their study. Chauhan P et al studied two groups of patients. First group had AFI less than 5cm and second with AFI less than 5TH percentile for that gestational age. The mean Amniotic fluid index was 3.9 ± 2.1cm (AFI less than 5thpercentile and 3 ± 1.5cm in patients with with less than 5cm. The mean amnioticfluid study in the present study was 3 + 1.04cm. Sadovsky Y et al in their study found that the mean amniotic fluid index was 2.9cm.

Obstetrical complications frequently associated with oligohydramnios were Gestational hypertension, postdatism,

intrauterine growth restriction, fetal renal Anamolies and intrauterine death of the fetus. In the present study 74% cases had associated obstetrical complications, acting singly or in combination for causing oligohydramnios. Gestational hypertension is present in 24% cases. Golan A et alin his study, found that maternal hypertension in 22.1% of cases, Cesarean sectionwas performed was performed in 35.25% of these cases. Mercer L J et al found that pre eclampsia was present in 24.7% of cases with decreased liquor. Study by Chauhan P et al reported pre eclampsia in 12% of cases. We conclude that the incidence of oligohydramnios ranges from 10 to 30 % in hypertensive patients requiring hospitalization.20% had postdated pregnancy in the present study.

Clement D et al studies 6 cases of postdatism in which amniotic fluid volume diminished abruptly over 24 hours. Bowen Chattoor JS et al in their study evaluated the relationship between amniotic fluid index and 55 postdated pregnancies. Oligohydramnios was noted in 4 (7.2%) cases. In the present study, intrauterine growth restriction was present in 14% cases and the rate of cesarean section was 45% and that of vaginal delivery was 43%. Study by Casey B et al found that there was increased rate of induction of labour (42%) and caesarean section (32%) in oligohydramnios cases. Golan A et al found that the overall cesarean section was performed in 35.2% of pregnancies. In the present study, the APGAR score less than 7 noted at 1 and 5 minutes after birth. Out of 26 babies with low APGAR score, 4 died during neonatal period.6 babies with low APGAR were delivered by cesarean section. In a similar study by Casey B et al 6% of babies had APGAR score of less than 3 at 5 mins. Out of these 9, 7 died during neonatal period. Jun Zhang et al found that an APGAR score of < 7 at 1 min was present in56 babies who had APGAR score of, 7 at 5 mins. Desai P et al found that three babies with APGAR score less than 7 at 5 minute as against only one in control group. In a similar study by Locatelli A et. al. of 341 patients with oligohydramnios, found no significant difference for APGAR score of less than 7 at 5 minute in study and control group. In the present study**,** four (8%) babies developed meconium aspiration. All four babies were admitted in NICU for further management. Three babies were delivered by caesarean section and one by vaginal route. Two babies died in neonatal period. Causes of death were meconium aspiration syndrome and development of septicemia. Babies who died due to meconium aspiration syndrome were of 37.5 weeks and 39.3 weeks of gestation with birth weight of 1.3 kg and 2.5kg respectively. Casey B et. al. studied 6423 patients, who underwent ultrasonography at more than 34 weeks gestation and found that 147 (2.3%) cases were complicated by oligohydramnios. stained amniotic fluid was identified, less often in pregnancies complicated by oligohydramnios (6% vs.15%, P=0.004). Notably; the incidence of meconium aspiration syndrome in infants with oligohydramnios was significantly higher despite the diminished identification of meconium stained amniotic fluid. Bowen Chattoor JS et. al. studied perinatal outcome in 55 postdate pregnancies. Oligohydramnios was noted in four patients. All 4 babies were admitted with meconium aspiration. One died due to this complication.

In the present study, there were 98% live births and 2% still births.2% babies died in neonatal period. The gross perinatal mortality was 20% in present study. Out of 4 perinatal deaths, 3 deaths were seen in unregistered cases. Chhabra S et. al. reported very high (87.7%) perinatal mortality in their study. Wolff F et. al. found that the perinatal mortality in their study was 7.2%. Apel - Sarid L et. al. found that the perinatal mortality was 9.9%. Chamberlin PF et. al. calculated the gross and corrected perinatal mortality rate in patients with decreased qualitative amniotic fluid volume and found it to be 188/1000 and 109/1000 respectively. Overall, the perinatal mortality is markedly increased in patients with oligohydramnios. The lack of amniotic fluid allows compression of fetal abdomen, which limits the movement of the diaphragm.

5. Conclusion

Oligohydramnios is being detected more often these days, due to routinely performed obstetric ultrasonography. In my study I have observed that Gestational hypertension and post dated pregnancies are the commonest causes of reduced amniotic fluid during third trimester. Oligohydramnios is found most commonly found in the primigravidas. The time and mode of delivery of these cases depends on severity of oligohydramnios and status of fetal wellbeing. In my study patients have undergone Caesarean section mostly for fetal causes such as intrapartum fetal heart rate abnormalities not associated with any maternal causes. Due to early termination of pregnancy in view of severe oligohydramnios, it has resulted in low birth weight babies who are more prone for respiratory distress and neonatal sepsis. My study had more patients with AFI 3 to 4 cm making the babies more prone for cord compression and ultimately resulting in meconium aspiration syndrome and the neonatal outcome for such babies were found to be poor. In the neonatal period, babies had either neonatal sepsis or resulted in death. But when compared to the earlier studies the percentage of neonatal death has drastically reduced due to the intense intrapartum monitoring and early decision and also due to the better neonatal set up. I conclude my study by saying that every case of oligohydramnios needs careful antenatal evaluation, parental counselling, individualized decision regarding timing and mode of delivery. Continuous intrapartum fetal monitoring and good neonatal care are necessary for better perinatal outcome.

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