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‘‘Study of Obstetric Outcome between 37 To 42 Weeks of Pregnancy’’

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ABSTRACT:-

BACKGROUND:-

The International Classification of Diseases defines term pregnancy as delivery between 37 weeks 0 days and 41 weeks 6 days. Recommended classification of deliveries from 37 weeksof gestation as per ACOG 2013 [1]: Early term: 37 0/7 weeks through 38 6/7 weeks, Full term:390/7 weeks through 40 6/7 weeks, Late term:41 0/7 weeks through 41 6/7 weeks, Post term: 42 0/7 weeks and beyond.

It is well known that only 4% of pregnant women deliver on their expected date of delivery[2]. Post term pregnancies are cause for more intensive clinical evaluation and intervention The incidence of postdated pregnancy decreases as the accuracy of dating criteria used increases and it varies according to the definition used and the population studied. The present study is an observational study was conducted to assess the maternal and fetal outcome at each gestational age in term pregnancy from 37 +6 days to 41+6 days.

AIMS AND OBJECTIVES:- *To assess maternal outcome in term pregnancy from 37 weeks to 42 completed weeks.To estimate neonatal outcome at each Gestational Age in term pregnancy.To estimate the incidence of fetal distress at each Gestation Age.To determine the mean duration of normal pregnancy with reference to the incidence of reassuring fetal status.*

MATERIALS AND METHODS:-*This is a prospective observational study carried out at Gandhi hospital over a period of 2 years (November 2014 to May 2015). 460 pregnant women with good to excellent dates, who delivered at a Gestational Ages between 37-42 weeks at Gandhi hospital, Secunderabad which is a tertiary care hospital and a major referral center for obstetric cases in Telangana State .Details were entered in a pre-designed proforma regarding the detailed history of period of Gestation Age, parity, complications during present pregnancy and in previous pregnancies, investigations. This study includes analysis of Maternal outcome regarding gestational age at delivery, mode of delivery, complications occurring during delivery and postpartum were observed. In all cases fetal outcome was observed in the form of maturity, APGAR score, birth weight, NICU admission, fetal distress and perinatal mortality.*

RESULTS AND ANALYSIS:-*Normal duration of human pregnancy is 280 days calculated based on Naegele’s rule. This duration of pregnancy varies according to ethnicity of the mother. The duration of a pregnancy is a significant determinant of its outcome. Mean gestational age at delivery of pregnant women in the present study is 39 weeks 5 days. In this study gestational age is determined by LMP,USG &Fundal Hight. In present study most of the cases (75%) of cases delivered ±1 week of EDD. Present study shows percentage of post term pregnancy is 1.7%. This proportion is comparable to a study by Blondel and colleagues[17] (2002). In the present study 58.3% of cases are primigravida, Gravida 2 constitute27% which is comparable to a study conducted by Bhat RA, Kushtagi P in 2006, Caughey*

and associates 2009.As Gestation Age advances from 37 to >42 wks, rate of normal vaginal deliveries decreases in the present study(92%) comparable to the study by Bhat RA et al(86%).Rate of instrumental deliveries are on increased trend as Gestational Age advances from 37 to 42 weeks(1.9%-25%). Rate of caesarean section are on increased trend as Gestational Age advances from 37 to 42 weeks and maximum percentage is seen in >42 weeks of Gestational Age(50%). As maternal complications such as perineal lacerations , PPH are are on increased trend as Gestation advances from 37 to >42 wks and maximum percentage is seen in >42 wks of Gestational Age(0.6%-25% & 3.6% - 50%). Rate of caesarean section is high in the induction group at 40-41 wks of Gestation in the present study(26.2%) which is comparable to other studies and the risk is statistically significant. This study is comparable to a study conducted by Caughey et al in 2009[27] in which 9 randomized controlled trials were included where at or beyond 41 weeks of Gestation expectant

management of pregnancy is associated with approximately 22% higher rate of caesarean delivery than elective induction of labor. Meconium stained amniotic fluid was recorded even at 37 weeks of Gestation but the proportion increased significantly as Gestational Age advances from 37 to >42 wks in the present study(13.2%-100%) compared to other studies such as Bhat RA et al[21](9.6%-30) Cheng YW et al[24] (2.2%-10.3%). Percentage of babies bornwith Low APGAR at 5 minutes increases as Gestation advances from 37 to >42wks in the present study(5.3%-75%) similar increase is seen in the study by Bhat RA et al[21](0.6%-10%).Rate of NICU admission is increased as Gestation advances from 37 to 42 wks of Gestation in the present study(15.8%-75%) & study by Bhat RA et al (1.8%-20%)also shows increase in the rate of NICU admission, Percentage of new born with Early Neonatal Death increases(0.6%- 37.5%) as Gestation advances from 37 to >42 weeks of Gestation with maximum percentage seen at >42 wks of Gestation which is comparable to a study by Bhat RA et al (0.3%–10%).

CONCLUSION:- *In the present study 75% of cases delivered ±1 week of EDD. Percentage of post term pregnancy when calculated using both LMP and ultrasound is 1.7%. Median age of pregnant women in this study is 22.5 years. As gestational age advances from 37 to 42 weeks of gestation Rate of normal vaginal deliveries decreases, Rate of instrumental deliveries increases. Rate of caesarean section increases. At 40-41weeks of gestational age induction of labor increases caesarean section rate compared with the expectant group. Maternal complications such as severe perineal lacerations and postpartum hemorrhage was increased.*

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I. Introduction:-

The International Classification of Diseases defines termpregnancy as delivery between 37 weeks 0 days and 41 weeks 6 days[1].

Recommended classification of deliveries from 37 weeks of gestation as per ACOG 2013 [1]:
Early term: 37 0/7 weeks through 38 6/7 weeks.

Full term: 39 0/7 weeks through 40 6/7 weeks Late term: 41 0/7 weeks through 41 6/7weeks
Post term: 42 0/7 weeks and beyond.

The frequency of adverse outcome is U-shaped with the nadir around 39 weeks0 daysthrough 40 weeks 6 days gestation[1].

To address the lack of uniformity in neonatal outcome between 37 0/7 weeks of gestation and 42 0/7 weeks of gestation, a work group was convened in late 2012 to determine whether term pregnancy should be re-defined.

It is well known that only 4% of pregnant women deliver on their expected date of delivery[2]. It has been alternatively shown that fetal maturity may be attained as earlyas 3 weeks prior to EDD or as late as 2 weeks after the calculated EDD[2].Post term pregnancies are cause for more intensive clinical evaluation and as indicated intervention[3].

The incidence of postdated pregnancy decreases as the accuracy of dating criteria used increases and it varies according to the definition used and the population studied. In a study by Boyd et al[9], 1988, the incidence of postdated pregnancy was 7.5% when the diagnosis was based on menstrual dating and the incidence was 2.6% when the dating was based on early ultrasound examination and 1.1% when the ultrasound and menstrual dating coincided. In my study incidence of post term pregnancy according to LMP and 1ST trimester scan is 1.7%.

AIMS AND OBJECTIVES:- :

To assess maternal outcome in term pregnancy from 37 weeks to 42 completedweeks**.**

To estimate neonatal outcome at each gestational age in term pregnancy. To estimate the incidence of fetal distress at each gestation age.

To determine the mean duration of normal pregnancy in regional population with reference to the incidence of reassuring fetal status.

II. Materials & Methods :-

This is a prospective observational study carried out at Gandhi hospital over a period of 2 years(Jan 2014-Nov 2015). It is a teritiary care hospital and a major referral centre for high risk obstetric cases in Telangana state. 460 pregnant patients who are term between 37 weeks to 42 weeks with no maternal and fetal complications with good dates and dating scan were taken into consideration.

INCLUSION CRITERIA:-

- All pregnancies irrespective of parity
- Singleton pregnancies
- Gestation age between 37-42 wks
  No maternal medical comorbidity or fetal complications
- No other complications such as APH, IUGR
- Women with excellent/good dates
- Women with 1^{st} trimester ultrasound dating/1^{st}& 2^{nd} trimester ultrasound dating
- Women with poor dates & with 1^{st} trimester ultrasound dating
- Women receiving antenatal care from 1^{st} trimester onwards with date of urine pregnancy testing and antenatal record of fundal height in 2^{nd} trimester.

EXCLUSION CRITERIA:-

- Deliveries at gestational age <37 weeks
- Multiple pregnancies
- Medical comorbidities(Preeclampsia,Gestational DM,Heart disease complicating pregnancy,Jaundice and Anaemia complicating pregnancy).

III. Observation And Results

An Observational study of 460 pregnant women, with good to excellent dates, who delivered at a gestational ages between 37-42 weeks at Gandhi hospital, Secunderabad from Jan 2014-nov 2015
This study includes analysis of both maternal and fetal outcome.

TABLE-1
DISTRIBUTION OF CASES AT EACH GESTATIONAL AGE FROM 37 TO >42WKS

Gestational age in wks	Total	37-38	38-39	39-40	40-41	41-42	>42
No.	460	19	53	158	184	38	8
%	100%	4.1%	11.5%	34.35%	40%	8.3%	1.7%

The above table shows that out of 460 cases included in the study 40% of cases were in 40-41wks of gestational age group followed by 34% in 39-40wks of gestational age, 1.7% are >42 wks gestational age. 75% of pregnancies delivered spontaneously within ±1 week of EDD.

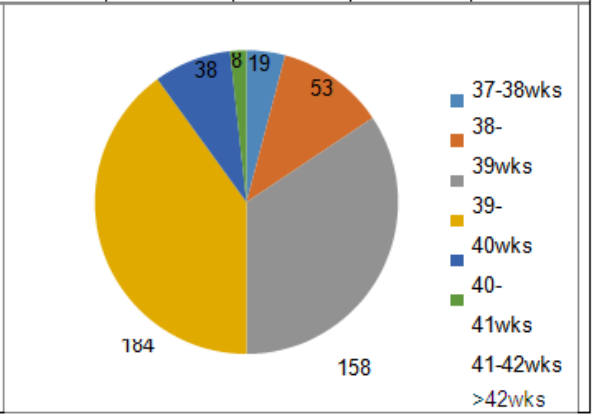

TABLE 2
DISTRIBUTION OF CASES BY AGE GROUP AT EACH GESTATIONAL AGE FROM 37TO >42WKS

Age(yrs)	Total	37-38	38-39	39-40	40-41	41-42	>42
<or =25	357(77.6%)	14(3.9%)	35(9.8%)	109(30.5%)	161(45.1%)	33(9.2%)	5(1.4%)
26-30	91(19.8%)	5(5.5%)	15(16.5%)	45(49.5%)	20(22%)	4(4.4%)	2(2.2%)
>30	12(2.6%)	-	3(25%)	4(33.3%)	3(25%)	1(8.3%)	1(8.3%)

The above table shows that majority of the cases were in the age group <25 years(77.6%) of which 45% were in 40-41wks GA followed by 35% in 38-39wks. .

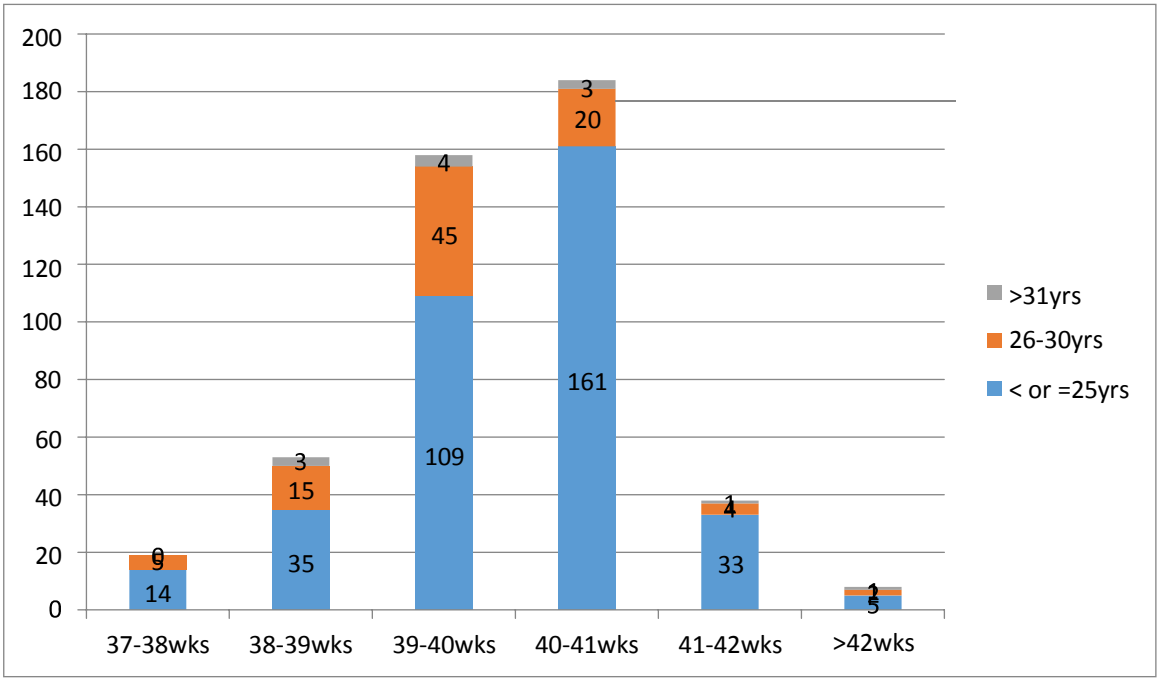

TABLE 3
DISTRIBUTION OF CASES BY PARITY AT EACH GESTATIONAL AGE FROM 37 TO >42WKS

Parity	Total	37-38wks	38-39wks	39-40wks	40-41wks	41-42wks	>42wks
Primi	268(58.3%)	12(4.5%)	33(12.3%)	86(32.1%)	107(40%)	25(9%)	5(2.1%)
Gravida 2	124(27%)	4(3.2%)	14(11.3%)	47(38%)	48(38.7%)	10(8%)	1(0.8%)
Gravida 3/ more	68(14.7%)	3(4.4%)	6(8.8%)	25(36.8%)	29(42.6%)	3(4.4%)	2(3%)

The above table shows out of 460 cases 58% were primigravida, 27% were 2nd gravid , 14.7% were gravid 3 and more. At each gestational age primigravida constitute maximum number of cases. Among the primigravida 40% delivered at gestational age 40-41wks followed by 32% in 39-40wks of gestational age. Among the gravid 2 38.7% delivered at 40-41wks followed by 38% delivered at 39-40wks. Among the multigravida 42.6% delivered at 40-41wks followed by 36.8% deliveredat 39-40wks. In post term pregnancies more cases were Primigravida(n=5).

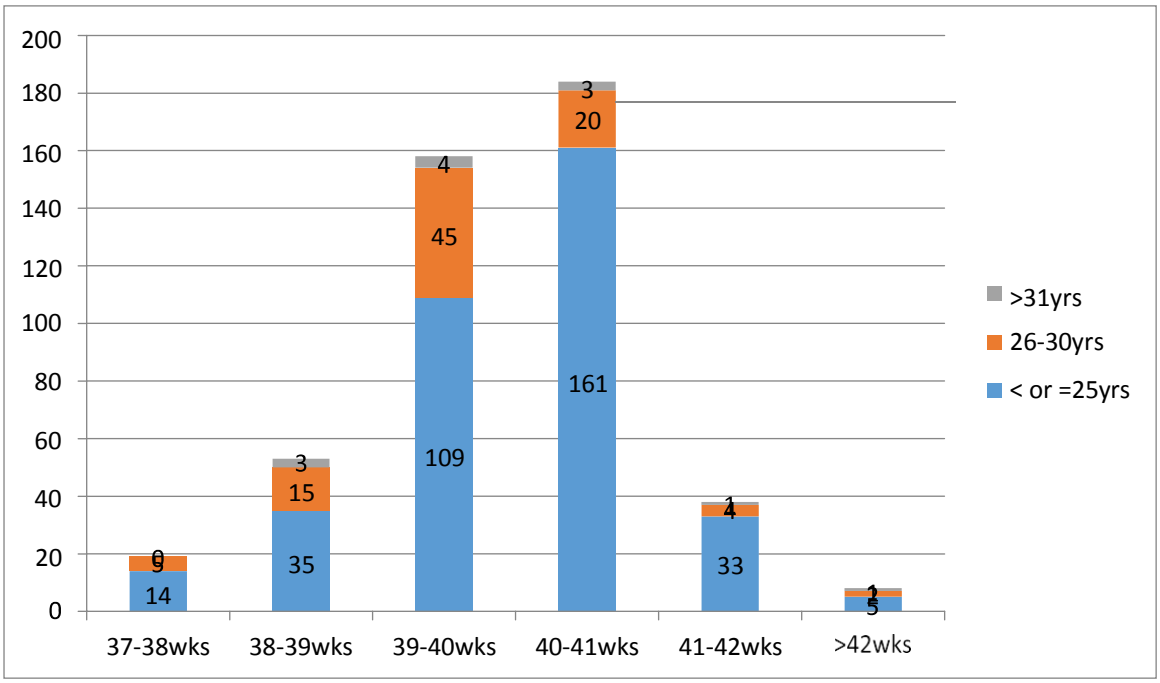

TABLE 4
ONSET OF LABOUR AT EACH GESTATIONAL AGE

Gestational age in weeks	Spontaneous onset n(%)	Induction n(%)
37-38wks (n=19)	19(100%)	-
38-39wks (n=53)	53(100%)	-
39-40wks (n=158)	158(100%)	-
40-41wks (n=184)	104(56.5%)	80(43.5%)
41-42wks (n=38)	11(29%)	27(71%)
>42wks (n=8)	2(25%)	6(75%)

In the present study 100% of cases had spontaneous onset of labor from 37 wks 40 wks. After EDD, 56.5% cases had spontaneous onset of labor at 40-41wks, 29% cases had spontaneousonset of labor at 41-42wks and 25% cases had spontaneous onset of labor at >42 wks of gestational age. After EDD, due to post dates 43.5% cases were induced at 40-41 wks of gestational age, 71% cases were induced at 41-42wks of gestational age and 75%cases wereinduced at >42wks.

TABLE 5
MODE OF DELIVERY AT EACH GESTATIONAL AGE

GA	37-38wks	38-39wks	39-40wks	40-41wks	41-42wks	>42wks	Total
Vaginal delivery	18(94.7%)	49(92.5%)	141(89.2%)	141(76.6%)	16(42.1%)	2(25%)	367(79.8%)
Instrumental delivery	-	1(1.9%)	5(3.2%)	11(6%)	14(36.5%)	2(25%)	33(7.2%)
Caesareansection	1(5.3%)	3(7.5%)	12(7.6%)	32(17.4%)	8(21.4%)	4(50%)	60(13%)

The above table shows mode of delivery at each gestational age from 37 to >42wks. At 37 wks of gestation 94.7% cases had normal vaginal delivery and only one case underwent caesarean section. As gestation age advances from 37 to >42 wks, rate of normal vaginal deliveries decreases and rate of instrumental vaginal deliveries and caesarean section increases. Instrumental deliveries are maximum at 41-42wks of gestation(36.5%).Caesareansection rate is maximum at >40 wks of gestation(50%).

TABLE 6
MATERNAL OUTCOME OF INDUCTION OF LABOR AT EACH GESTATIONAL AGE

Outcome	40-41wks n=80(%)	41-42wks n=27(%)	>42wks n=6(%)
Normal Vaginal delivery	53(66.3%)	14(52%)	1(16.7%)
Instrumental delivery	6(7.5%)	10(37%)	2(33.3%)
Caesarean section	21(26.2%)	3(11%)	3(50%)

The table showing maternal outcome in pregnant women who underwent induction of labor at 40-41wks, 41-42wks and >42wks.
At 40-41wks of gestational age out of 80 cases, 66.3% had normal vaginal delivery, 7.5% underwent instrumental delivery and 26.2% underwent caesarean section.
At 41-42wks of gestational age out of 27 cases, 52% had normal vaginal delivery, 37%
.underwent instrumental delivery and 11% underwent caesarean section.

TABLE 7
INCIDENCE OF MSL AT EACH GESTATIONAL AGE

Gestational age in weeks	Thin MSL	Thick MSL
37-38wks (n=19)	1(5.3%)	-
38-39wks (n=53)	6(11.3%)	1(1.9%)
39-40wks (n=158)	24(15.2%)	9(5.7%)
40-41wks (n=184)	91(49.5%)	29(15.8%)
41-42wks (n=38)	22(57.9%)	16(42%)
>42wks (n=8)	2(25%)	6(75%)

The above table shows incidence of MSL from 37 to >42 weeks gestational age. At 37-38 weeks, 5.3% caseshad thin MSL and there were no cases of thick MSL.At 38-39 weeks,11.3% cases had thin MSL and 1.9% had thick MSL.At 39-40 weeks,15.2% cases had thin MSL and 5.7% had thick MSL.At 40-41 weeks,49.5% cases had thin MSLand 15.8% had thick MSL.At 41-42 weeks,57.9% cases had thin MSL and 42% had thick.At >42 weeks,25% cases had thin MSL and 75% had thick MSL

TABLE 8
INDICATION FOR CAESAREAN SECTION AT EACH GESTATIONAL AGE

Indications	37-38wks (n=19)	38-39wks (n=53)	39-40wks (n=158)	40-41wks (n=184)	41-42wks (n=38)	>42wks (n=8)
Failed induction	-	-	-	17	2	-
Secondary arrest of dilatation	-	1	5	5	1	-
Thick MSL with fetal distress	1	1	4	5	2	3
CPD	-	1	3	2	1	-
Severe oligohydramnios	-	-	-	3	2	1
Total	1	3	11	32	8	4

At 39-40wks 5 cases underwent caesarean section in view of secondary arrest of dilatation. At 40-41 wks of GA 17 cases underwent caesarean section in view of failed induction,5 cases in view of secondary arrest of dilatation, 5 cases in view of thick MSL with fetal distress,3 cases in view of severe oligohydramnios, 2 cases in view of CPD. At 41-42wks 2 cases underwent caesarean section in view of failed induction,2 cases in view of thick MSL with fetal distress, 2 cases in view of severe oligohydramnios, 1 case in view of secondary arrest of dilatation, 1 case in view of CPD. At>42wks 3 cases had caesarean section in view of thick MSL with fetal distress, and one case in view of severe oligohydramnios

TABLE 9
MATERNAL OUTCOME AT EACH GESTATIONAL AGE FROM 37 TO >42 WKS

MaternalOutcome	37-38wks (n=19)	38-39 wks (n=53	39-40wks (n=158)	40-41wks (n=184)	41-42wks (n=38)	≥42wks (n=8)
Severe perineal lacerations	-	-	1(0.6%)	5(2.72%)	3(7.9%)	2(25%)
Post partum hemorrhage	-	2(3.8%)	6(3.8%)	12(6.52%)	5(13.2%)	4(50%)
Blood transfusions	-	3(5.7%)	8(5.1%)	15(8.2%)	6(15.8%)	5(62.5%)

As gestational age advances from 37 to > 42 weeks of gestation percentage of severe perineal lacerations and postpartum hemorrhage are increased with maximum percentage seen in >42wks

TABLE 10
TABLE SHOWING PERCENTAGE OF INSTRUMENTAL DELIVERIES INSPONTANEOUS AND INDUCTION GROUPS AT 40-41WKS OF GA

Mode of delivery	Spontaneous n(%)	Induction n(%)
Instrumental delivery	5(4.8%)	6(7.5%)
Normal vaginal delivery	88(84.6%)	53(66.3%)

p value is 0.33 calculated using fischer exact test which is not significant

At 40-41 wks of gestation there is increase in the percentage of instrumental deliveries in the induction group (7.5%) compared to that in the spontaneous group(4.8%). But the differenceis not statistically significant.

TABLE 11

TABLE SHOWING PERCENTAGE OF CAESAREAN SECTION IN SPONTANEOUS AND INDUCTION GROUPS AT 40-41WKS OF GA

Mode of delivery	spontaneous n(%)	induction n(%)
Vaginal delivery	93(89.4%)	59(73.8%)
Caesarean section	11(10.6%)	21(26.2%)
Total	104	80

p value is 0.0006 calculated using chi square test which is significant

There is a statistically significant difference between spontaneous and induced labor leading to either normal vaginal delivery or caesarean section at 40-41 weeks of gestation and moreinduced pregnant women underwent caesarean section.

TABLE 12
TABLE SHOWING PERCENTAGE OF CAESAREAN SECTION IN SPONTANEOUS AND INDUCTION GROUPS AT 41-42WKS OF GA

Mode of delivery	Spontaneous n(%)	Induction n(%)
Vaginal delivery	6(54.6%)	24(89%)
Caesarean section	5(45.4%)	3(11%)
Total	11	27

p value is 0.03 calculated using fischer exact test which is significant

There is statistically significant difference between spontaneous and induced labor leading to either normal vaginal delivery or caesarean section at 41-42weeks of gestation and more induced pregnant women had normal vaginal delivery

TABLE 13
THE TABLE SHOWS FETAL OUTCOME AT EACH GESTATIONAL AGE FROM 37 TO >42WKS

Fetal outcome	37-38wks (n=19)	38-39wks (n=53)	39-40wks (n=158)	40-41wks (n=184)	41-42wks (n=38)	>42wks (n=8)
Low apgar at 1 minute	3(15.8%)	9(17%)	15(9.5%)	43(23.4%)	20(52.6%)	6(75%)
Low apgar at 5 minute	1(5.3%)	5(9.4%)	11(7%)	36(19.6%)	17(44.7%)	6(75%)
Birth weight ≥3.5kg	0	3(5.7%)	9(5.7%)	6(3.3%)	12(31.6%)	6(75%)
MSL	1(5.3%)	7(13.2%)	33(20.9%)	120(65.2%)	38(100%)	8(100%)
Thin MSL	1(5.3%)	6(11.3%)	24(15.2%)	91(49.5%)	22(57.9%)	2(25%)
Thick MSL	0	1(1.9%)	9(5.7%)	29(15.8%)	16(42%)	6(75%)
NICU admission	3(15.8%)	9(17%)	15(9.5%)	43(23.4%)	20(52.6%)	6(75%)
a. Duration	3 days	3 days	<1 week	<10 days	<14 days	3 weeks
b. Early neonatal death	0	0	1	1	3	3

The above table shows as gestational age advances from 37 to >42 weeks, neonatalcomplications such as low apgar at 1 and 5 minutes, NICU admission, duration of admission and early neonatal death increases maximum at >42 weeks of gestational age. Meconium stained liquor seen in 13% to 100% of pregnant women beyond 41 weeks of gestation, Low Apgar at 5 minutes is increased , NICU admission rate was increased ,Fetal distress increases as gestation advances ,Early neonatal death is seen in 0.6% of newborn delivered at 39-40 weeks of gestation and the rate increasesas gestation advances and maximum seen in >42weeks, 37.5%.

IV. Discussion:-

Normal duration of human pregnancy is 280 days calculated based on Naegele's rule[12]. This duration of pregnancy varies according to ethnicity of the mother. Balchin et al found that median gestational age at delivery for a singleton pregnant women was 39 completed weeksin the black and Asian ethnic groups[7].
Mean gestational age at delivery of pregnant women in the present study is 39 weeks 5 days.In this study gestational age is determined by a)LMP in a woman with 3 previous regular cycles, who did not use any hormonal contraception, and who is not breast feeding her child b) first trimester ultrasound c) second trimester ultrasound d)serial symphysio-fundal height.
Delivery rate of pregnant women across the 5 week of gestational age that constitutethe term is as follows:

Gestational agein weeks	Erich Weiss et al [16] 1999-2006 (California)	Erich Weiss et al [16] 2004-2009(Baden-Wuerttemberg/Germany)	Present study
37-38wks	8.81%	8.1%	4.1%
38-39wks	19.13%	19.76%	11.5%
39-40wks	28.78%	26.68%	34.35%
40-41wks	25.57%	29.77%	40%
41-42wks	13.31%	14.73%	8.3%
>42wks	4.4%	0.95%	1.7%

In present study most of the cases 75% of cases delivered ±1 week of EDD.

Present study shows percentage of post term pregnancy is 1.7%. This proportion is comparable to a study by Blondel and colleagues[17] (2002) who analysed44,623 woman for post term pregnancy rates. The proportion of post term births was 6.4% when based on LMP alone, but was 1.9% when based on sonographic measurements alone[2.] Another study conducted in the year 2008 by Caughey and co-workers shows that Sonographic pregnancy dating at 12 weeks or less resulted in a 2.7%.

Present study shows 8.9% cases are post term pregnancy when EDD calculated based on LMP alone, but 1.7% when 1st trimester ultrasound was used along with LMP which is comparable to the above studies.

In the present study younger age (<25yrs) is significantly associated with pregnancies going beyond 40

weeks of gestation where as in a study by Caughey et al age group of 30-39 yrs is associated with post term pregnancy[13].

In the present study 58.3% of cases are primigravida, Gravida 2 constitute 27% which iscomparable to a study conducted by Bhat RA, Kushtagi P in 2006 in which primigravida constitute 51% of total and gravid 2 constitute 30%[21.]

In the present study parity does not have any significant relation with gestational age atdelivery.

Primigravida are at more risk of prolonged and post term pregnancy as per the study byCaughey and associates 2009[22].

Normal vaginal delivery

Gestational age in weeks	Bhat RA et al 2006[21]	Present study
37-38wks	86.8%	94.7%
38-39wks	85%	92.5%
39-40wks	83.6%	89.2%
40-41wks	76%	76.6%
41-42wks	70%	42.1%
>42wks	-	25%

As gestation age advances from 37 to >42 wks, rate of normal vaginal deliveries decreases inthe present study which is comparable to the study by Bhat RA et al[21]

In the present study percentage of instrumental deliveries are increased from 37 to >42 weeksof gestation

Gestational age in weeks	Bhat RA et al 2006[21]	Aaron B Caughey et al 2007[23]	Cheng YW et al 2009[24]	Present study
37-38wks	7.4%	8.9%	6.7%	0
38-39wks	6.3%	8.8%	6.87%	1.9%
39-40wks	8.3%	9.4%	7.56%	3.2%
40-41wks	9.3%	10.9%	8.13%	6%
41-42wks	10%	13.3%	9.16%	36.5%
>42wks	-	17.4%	-	25%

Rate of instrumental deliveries are on increased trend as gestational age advances from 37 to 42 weeks in both studies but the percentage is less in the present study because of small sample size.

In the present study percentage of caesarean section are increased from 37 to >42 weeks ofgestation.

Gestational age in Weeks	Bhat RA et al 2006[21]	Aaron B Caughey et al 2007[23]	Cheng YW et al 2009[24]	Present study
37-38wks	5.8%	9.9%	13.26%	5.3%
38-39wks	8.7%	8.2%	12.82%	7.5%
39-40wks	8.4%	8.8%	12.81%	7.6%
40-41wks	14.6%	9%	14.08%	17.4%
41-42wks	20%	14%	19.83%	21.4%%
>42wks		21.7%	-	50%

Rate of caesarean section are on increased trend as gestational age advances from 37 to 42weeks and maximum percentage is seen in >42 weeks of gestational age(50%)

	White European	Mediterranean	African-Carribean	Present study
Maternal age, Mean(SD)	30.7(4.6)	28.2(5.4)	27.8(6.2)	22.5(2.12)
Nulliparous (%)	44.3%	35.8%	40.2%	58.3%
Gestational age at delivery,Median	40wks +1 day	40wks +1 day	39wks + 6 days	39wks +5 days
Induction of	26.6%	27.9%	32.5%	24.5%

labor (%)				
Caesarean section (%)	9.0%	7.5%	13.5%	13%
Birth weight, Mean(SD)	3615(447)	3565(437)	3463(425)	3200(845)

The above table shows characteristics of pregnant women compared with that of different ethnicities as per study by BM Kazemier et al 2014[14] along with characteristics of present study who belong to South Indian ethnicity.

As maternal complications such as perineal lacerations are considered percentage is given as follows:

Gestational age in weeks	Aaron B Caughey et al 2007[23]	Present study
37-38wks	3.4%	-
38-39wks	3.6%	-
39-40wks	4%	0.6%
40-41wks	4.6%	2.72%
41-42wks	6.7%	7.9%
>42wks	9.1%	25%

Rate of perineal lacerations are on increased trend as gestation advances from 37 to >42 wks and maximum percentage is seen in >42 wks of gestational age which is comparable to the above study.

As maternal complications such as postpartum hemorrhage are considered percentage is given as follows:

Gestational age in weeks	Aaron B Caughey et al 2007[23]	Present study
37-38wks	1.1%	-
38-39wks	2.5%	3.8%
39-40wks	2.5%	3.8%
40-41wks	3.1%	6.52%
41-42wks	4.1%	13.52%
>42wks	50%	50%

Rate of postpartum hemorrhage are on increased trend as gestation advances from 37 to >42 wks and maximum percentage is seen in >42 wks of gestational age as high as 50% which is comparable to the above study.

As both maternal and neonatal complications increase beyond EDD, 3 groups, gestational age 40-41wks, 41-42wks and >42wks are studied to identify which group is at highest risk. These groups are further divided into cases which went into spontaneous onset of labor and cases in whom induction was done.

In the present study at 40-41wks 56.5% cases went into spontaneous onset of labor whereas 43.5% underwent induction. When labor induced at 40 weeks of gestation there is statistically significant increase in the rate of caesarean section.

Study	Induction group	Expectant management group
Chakravarthi 2000[26]	29/114 (25.4%)	20/117 (17%)
Gelsen 2005[26]	58/300 (19.3%)	66/300 (22%)
Present study	21/80 (26.2%)	11/104 (10.6%)

Rate of caesarean section is high in the induction group at 40-41 wks of gestation in the present study which is comparable to other studies and the risk is statistically significant.

In the present study at 41-42wks 29% cases went into spontaneous onset of labor whereas 71% underwent induction in statistically significant difference in the mode of delivery. Induction of labor resulted in significant decrease in the percentage of caesarean section compared to spontaneous group(11% in induced group, 45.4% in spontaneous group).

This study is comparable to a study conducted by Caughey et al in 2009[27] in which 9 randomized controlled trials were included where at or beyond 41 weeks of gestation expectant management of pregnancy is

associated with approximately 22% higher rate of caesarean delivery than elective induction of labor.

This is also comparable to Cochrane database of systemic reviews in 2012 by Gulmezoglu AM et al[26] in which induction of labor at 41 weeks resulted in significantly fewer caesarean section compared with expectant management in 21 trials of 8749 pregnant women. Another study by Heimsted 2007a[25] resulted in a fewer caesarean section rate in induction group compared with expectant management(13% Vs 11%).

Of more concern as the pregnancy goes past dates is condition of the fetus in utero and the neonate. Meconium passage in utero is both physiological and pathological. Considering meconium passage as a manifestation of normal maturation indirectly increased myelination and responsiveness of the fetal gastrointestinal tract [28,29] B hypothesized that evidence of meconium stained amniotic fluid increases with each week of gestational age and may vary among ethnic groups[28,29,30].

Gestational age in weeks	Bhat RA et al 2006[21]	Cheng YW et al 2008[24]	Present study
37-38wks	-	2.27%	13.2%
38-39wks	9.6%	3.24%	20.9%
39-40wks	13.8%	5.2%	65.2%
40-41wks	26.3%	7.39%	100%
41-42wks	30%	10.33%	100%

Meconium stained amniotic fluid was recorded even at 37 weeks of gestation but theproportionincreased significantly as gestational age advances from 37 to >42 wks in the present study, the percentages of which are far high compared to other studies such as BhatRA et al[21], ChengYW et al[24] which may be because of small sample size of the present study.

Low APGAR at 5 minutes

Gestational age in weeks	Bhat RA et al 2006[21]	Present study
37-38wks	-	5.3%
38-39wks	-	9.4%
39-40wks	0.6%	7%
40-41wks	2%	20.1%
41-42wks	10%	44.7%
>42wks	-	75%

Percentage of babies born with low APGAR at 5 minutes increases as gestation advances from 37 to >42wks in the present study. Similar increase is seen in the study by Bhat RA et al[21] but the values are not comparable as sample size is less in the present study.

NICU admission

Gestational age in weeks	Bhat RA et al 2006[21]	Present study
37-38wks	-	15.8%
38-39wks	1.8%	17%
39-40wks	5.5%	9.5%
40-41wks	11.7%	23.4%
41-42wks	20%	52.6%
>42wks	-	75%

Rate of NICU admission is increased as gestation advances from 37 to 42 wks of gestation in the present study with maximum percentage seen in >42wks of gestational age,75%. A study by Bhat RA et al[21] also shows increase in the rate of NICU admission with maximumbeing at 41-42wks of gestational age.

Early neonatal death

Gestational age in weeks	Bhat RA et al 2006[21]	Present study
37-38wks	-	-
38-39wks	-	-
39-40wks	0.3%	0.6%
40-41wks	0.6%	0.54%
41-42wks	1%	7.89%
>42wks	10%	37.5%

Percentage of new born with early neonatal death increases as gestation advances from 37 to >42 weeks of gestation with maximum percentage seen at >42 wks of gestation which is comparable to a study by Bhat RA et al.

V. Conclusion:-

In the present study 75% of cases delivered ±1 week of EDD.mean duration of pregnancy vries according to ethinicity and is not same in all pregnant women and duration in present study is 39weeks 5 days . Percentage of post term pregnancy when calculated using both LMP and ultrasound is 1.7%. Median age of pregnantwomen in this study is 22.5 years.As gestational age advances from 37 to 42 weeks of gestation Rate of normal vaginal deliveries decreases, Rate of instrumental deliveries increases. Rate of caesarean section increases. At 40-41weeks of gestational age induction of labor increases caesarean section rate compared with the expectant group. Maternal complications such as severe perineal lacerations and postpartum hemorrhage was increased.

Meconium stained liquor seen in 13% of pregnant women delivered at 37weeks of gestation whereas it is seen in 100% of pregnant women beyond 41 weeks of gestation, Low Apgar at5 minutes is increased , NICU admission rate was increased, Fetal distress increases as gestation advances ,Early neonatal death is seen in 0.6% of newborn delivered at 39-40 weeksof gestation and the rate increases as gestation advances and maximum seen in >42weeks, 37.5%. Rate of NICU admissions increases as gestation age increases, least seen in 39 to 40wks, 15.8% and maximum seen in >42wks , 37.5%.

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