



## International Journal of Allied Medical Sciences and Clinical Research (IJAMSCR)

ISSN:2347-6567

IJAMSCR | Volume 5 | Issue 2 | Apr - Jun - 2017  
www.ijamscr.com

Research article

Medical research

### A study of maternal and fetal outcome in postdated pregnancy

Padmalatha Dakshnamurthy<sup>1\*</sup>, Srimathi Jagannathan<sup>1</sup>, Nidhi Sharma<sup>2</sup>, Kannan Rajendran<sup>3</sup>

<sup>1</sup>Senior Asst. Professor, Dept. of Obstetrics and Gynecology, Govt. Kilpauk Medical college Hospital, Kilpauk, Chennai -600010, Tamil nadu

<sup>2</sup>Professor, Dept. of Obstetrics and Gynecology, Saveetha Medical College, Saveetha University, Chennai -605102, Tamilnadu

<sup>3</sup>Professor, Dept. of General Medicine, Saveetha Medical College, Saveetha University, Chennai -605102, Tamilnadu

\*Corresponding Author: Padmalatha Dakshnamurthy

Email id: endork@yahoo.com

#### ABSTRACT

##### Objective

To assess the whether the elective induction of labor at 41 weeks is associated with lower caesarean section rates as compared to elective induction of labor at 40 weeks in a postdated pregnancy. Perinatal morbidity and mortality were also compared at 40 weeks and 41 weeks of gestation.

##### Participants

Labor was induced in 50 cases of postdated pregnant women at 41 weeks. 50 cases of post-dated women with labor induction at 40 weeks were taken as controls.

##### Main outcome measures

The primary outcome was assessed as the incidence of microsomal/low birth weight, color of liquor, incidence of MAS, NICU admission rate, APGAR score less than 7 at 5 minutes. Secondary outcome was incidence of instrumental delivery (vacuum, forceps) and LSCS.

##### Results

There was a minimal increase in the incidence of babies with increased birth weight (>3.6kg) in the study group (7% vs. 4%). The meconium staining of liquor is higher in the study group (65% vs. 35%). Though there was a higher rate of meconium staining of liquor and the need for amnioinfusion in the study group, the NICU admissions, Apgar of <7 at 5 minutes and the number of neonatal deaths were the same in both the groups. The LSCS rates are low (16% Vs 28%) in the study group. The rates of instrumental delivery (12%) in the study group is less compared to the control group (26%)

##### Conclusion

NICU admissions, APGAR score at 5 minutes and neonatal mortality is almost the same in both study and control group. Labor Induction at 41 weeks is more likely to culminate in a normal delivery as the Bishop score improves. Induction of labor in an uncomplicated low risk pregnancy at 41+ weeks of gestation is associated with reduced caesarean section rates with no adverse effect on neonatal outcome.

**Keywords:** Induction, Labor, Postdated pregnancy.

## INTRODUCTION

Prolonged pregnancy is a term used for postdated and post term pregnancy. Post dated pregnancy is pregnancy beyond 40 weeks of gestation [1, 2]. Post term pregnancy is defined as pregnancy beyond forty-two weeks of gestation. Prolonged pregnancy carries a significant morbidity and mortality [3, 4]. So, obstetricians start planning delivery as soon as expected date of delivery (as calculated by naegle's formula) is crossed. Elective induction in a post dated pregnancy at 40+ weeks or 41+ weeks is a matter of debate [5, 6, 7].

Physiological postdates is a genetic form with a familial predisposition (8, 9, 10, 11). It does not pose a perinatal risk. A case of physiological post dates if induced result in instrumental delivery with forceps or ventouse or cesarean section. Differentiating these cases from pathological post dates by careful history taking, intensifying antenatal fetal surveillance and planning elective induction at 41 weeks can reduce the incidence of cesarean and instrumental deliveries.

As gestation advances the cervix becomes soft and chances of ripening with mechanical and medical methods is improved leading to increased chances of normal delivery. This reduces the need for forceps extraction and cesarean section. On the other side increased gestation is associated with diminishing liquor volume. Obstetricians therefore have to plan the apt time of induction after the pregnancy is postdated. We have attempted to compare the maternal and perinatal mortality when induction is planned at 40 weeks or 41 weeks.

## MATERIALS AND METHODS

This prospective study was done in our teaching institute after Institutional Review Board Approval. The inclusion criteria were 15 - 44 years pregnant women with regular menstrual cycles and completed 40 weeks of gestation with singleton live pregnancy with cephalic presentation.

Patients with any medical problem such as Hypertension, Diabetes mellitus, cardiovascular disease, renal disease, obstetrical complication like PIH, GDM, BOH, Antepartum hemorrhage, PROM, multiple gestation, fetal congenital anomalies, any contraindication for vaginal delivery (previous LSCS, myomectomy, CPD, malpresentations),

unreliable dates, H/o intake OCP, injectable contraceptives or any other hormonal tablets and those who did not provide consent were excluded from the study design. Gestational age was calculated based on the mother's statement of 1<sup>st</sup> day of last menstrual period and confirmed by the scan taken in the 1<sup>st</sup> or early 2<sup>nd</sup> trimester. The study group comprised of Antenatal women who had completed 41 weeks of gestation. The control group comprised of Antenatal women who had completed 40 weeks of gestation. Detailed history regarding the regularity of menstrual cycle, LMP, EDD, H/o contraception, H/o of previous postdated pregnancies. H/o of postdated pregnancies in the family, H/o any medical illness affecting pregnancy were taken from all patients.

A detailed examination was performed including assessment of general condition, pulse, blood pressure, temperature, height, weight abdominal examination including measurement of symphysial fundal height, lie of fetus, presentation, estimation of amniotic fluid, EFW, fetal heart sounds, bimanual examination were done to assess the bishop's cervical score. Both groups of patients underwent USG for AFI and NST.

Induction of labor was done using either one or two doses of PGE2 gel or oxytocin according to the cervical status. Acceleration of labor was done using ARM and oxytocin infusion. The color of the liquor was noted and amino infusion given in cases of grade 2 & 3 MSL using 500 ml of NS at room temperature. FHR monitored by intermittent auscultation and progress of labor monitored using pantograph and mode of delivery decided accordingly.

The maternal outcome was studied in terms of vaginal delivery, instrumental delivery (vacuum, forceps) and LSCS and the rates were compared between the two groups. The neonatal outcome were studied in terms of color of liquor, MAS, microsomia / IUGR, NICU admission rate, APGAR score less than 7 at 5 minutes and rates compared between the two groups. Data collected were subjected to statistical analysis. Continuous variables are presented as mean  $\pm$  SD; ordinal and Nominal data are presented as number and percentage. Comparison between the groups was made using student's t test for quantitative data and chi square test for qualitative data.

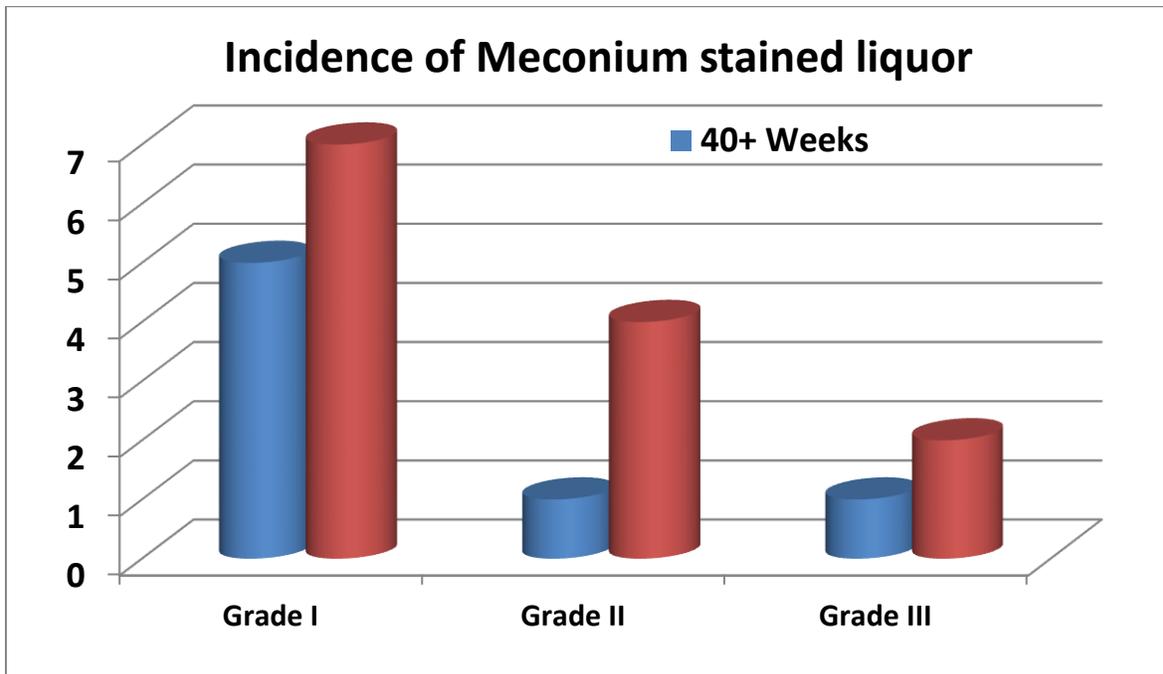
**RESULTS**

Among the 100 cases only 20 had meconium staining of liquor. 13 (65%) out of 20 belonged to the study group and 7 (35%) belonged to the

control group. In the control group out of 7, 5 were grade 1, 1 was grade2, and 1 was grade 3 MSL. In the study group out of 13, 7 were grade 1, 4 were grade 2, and 2 were grade 3 MSL (Table 1& Figure 1).

**Table 1: Meconium stained amniotic fluid at 40 weeks and 41 weeks**

Meconium stained Liquor	40+ Weeks of Gestation		41+ Weeks of Gestation	
	No. Of cases	Percentage	No. Of cases	Percentage
Grade I	5	72	7	54
Grade II	1	14	4	31
Grade III	1	14	2	15
Total	7	100	13	100



**Figure 1: Meconium stained amniotic Fluid at 40 weeks and 41 weeks**

Out of the 100, only 8 required amnioinfusion. 6/8 (75%) belonged to the study group and 2/8(25%) belonged to the control group .In the control group out of 50 the birth weight of 2 were between 2.1-2.5kg, 26 between 2.6-3kg, 18

between 3.1-3.5kg, 4 between 3.6-4kg. In the study group out of 50 the birth weight of 4 were between 2.1-2.5kg, 20 between 2.6-3kg, 19 between 3.1-3.5kg, 6 between 3.6-4 kg (Table 2 & Figure 2).

**Table 2: Neonate birth weight at 40 weeks and 41 weeks**

Birth weight (Kg)	40+ Weeks of Gestation		41+ Weeks of Gestation	
	No. Of cases	Percentage	No. Of cases	Percentage
2.1-2.5	2	4	4	8
2.6-3.0	26	52	20	40
3.1-3.5	18	36	19	38

3.6-4.0	4	8	6	12
>4	0	0	1	2
Total	50	100	50	100

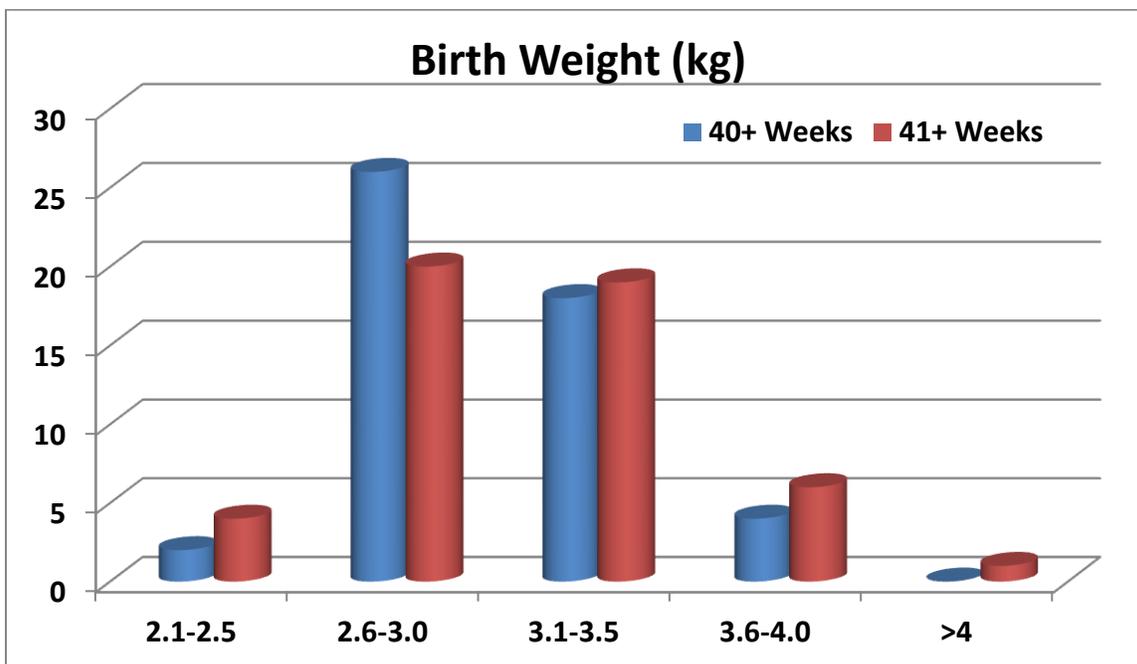


Figure 2: Neonate birth weight at 40 weeks and 41 weeks

In the control group of 50, 14 (28%) delivered by LSCS, 23(46%) by labor natural, and 13(26%) by instrumental delivery. (8 outlet forceps, 5 vacuum). In the study. Group of 50, 8(16%)

delivered by LSCS, 36(72%) by labor natural and 6(12%) by instrumental delivery (4 – outlet forceps, 2 –vacuum) (Table .3 & Figure 3)

Table 3: Mode of delivery at 40 weeks and 41 weeks

Delivery	40+ Weeks of Gestation		41+ Weeks of Gestation	
	No. Of cases	Percentage	No. Of cases	Percentage
LSCS	14	28	8	16
NVD	23	46	36	72
Outlet	8	16	4	8
Vacuum	5	10	2	4
<b>Total</b>	<b>50</b>	<b>100</b>	<b>50</b>	<b>100</b>

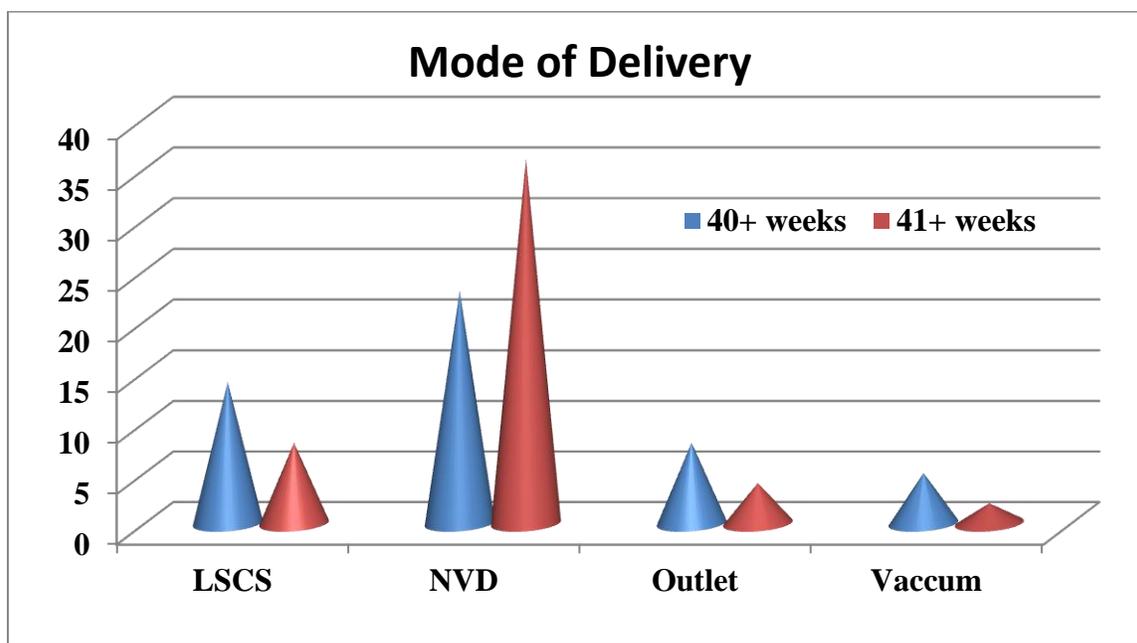


Figure 3: Mode of delivery at 40 weeks and 41 weeks

There is a significant difference in the rates of LSCS and labor natural among 40+ weeks and 41+ weeks of gestation ( $p=0.048$ ). There is a significant difference in rates of instrumental delivery and labor natural among 40+ weeks of gestation and 41+ weeks of gestation. ( $P=0.025$ ).

## DISCUSSION

Incidence of meconium staining of Amniotic fluid in our study is comparable to earlier studies. This is not a specific indicator of fetal hypoxia, but there is good evidence that cord arterial blood pH is lower in babies who show FHR abnormalities with MSAF than in FHR abnormalities with clear liquor. Meconium stained amniotic fluid may be the result rather than the cause of fetal hypoxia as any stress increases bowel motility. From the statistical analysis induction of labor at 41 weeks decreases the LSCS rates. Perinatal outcome is not statistically significant different from those induced at 40 weeks and those induced at 41 weeks. The incidence of cesarean section and instrumental deliveries with venous and forceps and subsequent maternal and fetal morbidity can be reduced if elective induction is planned at 41+ weeks as compared to 40+ weeks. Elective induction at 41 + weeks is as safe as elective induction at 40+ weeks if fetal surveillance is continued. After 40 weeks of gestation antenatal fetal surveillance should be

intensified and elective induction can be safely planned at 41 weeks. Patients with a genetic cause of postdates should be differentiated from post dates due to other causes by careful history taking. Further studies are required to differentiate physiological post dates from pathological postdates. Fetal male sex and pre pregnancy BMI has been postulated as a probable association with prolonged pregnancy in a few studies(8,11).Candidate genes responsible for postdates may be identified by gene mapping of pregnancies where familial predisposition is found [9,10,11,12].

## CONCLUSION

Elective induction can be safely planned at 41 weeks in a post-dated pregnancy [13, 14, 15, 16]. NICU admissions, Apgar score at 5 minutes and neonatal mortality is almost the same in both study and control group [17]. Labor Induction at 41 weeks is more likely to culminate in a normal delivery as the Bishop score improves as gestation advances. Induction of labor in an uncomplicated low risk pregnancy at 41+ weeks of gestation is associated with reduced maternal morbidity with no adverse effect on neonatal outcome [18, 19]. Regular antenatal visits and first trimester dating scan and educating the antenatal women regarding complications associated with post dated pregnancy

are essential [3, 4, 5, 20, 21]. Aging of placenta has a strong genetic basis and the ideal time of induction should be individualized [22, 23, 24]. When dates are certain then NICE guidelines recommend that information about prolonged pregnancy is provided to all women and specifically at 38+w. At 40 - 41w nulliparous women be offered vaginal examination (VE) with membrane sweeping. At 41w parous women be offered Vaginal Examination with membrane sweeping. That all women with uncomplicated pregnancies are offered induction of labour at 41 – 42w. A policy of routine induction of labour is only applicable if dates are known with accuracy. This requires routine ultrasound to confirm dates at <16 weeks gestation. It is best practice to discuss the pros and cons of Induction of Labour with women and involve them in the decision process.

**Acknowledgements** : Nil

### Declarations

Funding : Self-funded  
 Conflict of interest : Nil  
 Ethical approval : Approved

### Consent

We have obtained the patients' consent for participation in the study

### Competing interests

We do not have any commercial association that might pose a conflict of interest in connection with the manuscript. We certify that neither this manuscript nor one with substantially similar content under our authorship has been published or is being considered for publication elsewhere.

## REFERENCES

- [1]. ACOG Practice Bulletin. Clinical management guidelines for obstetricians-gynecologists. Number 55, September 2004 (replaces practice pattern number 6, October 1997). Management of Postterm Pregnancy. *Obstet Gynecol.* 104(3), 2004, 639-46.
- [2]. Norwitz ER, Snegovskikh VV, Caughey AB. Prolonged pregnancy: when should we intervene?. *Clin Obstet Gynecol.* 50(2), 2007, 547-57.
- [3]. Taipale P, Hiilesmaa V. Predicting delivery date by ultrasound and last menstrual period in early gestation. *Obstet Gynecol.* 97(2), 2001, 189-94.
- [4]. Savitz DA, Terry JW Jr, Dole N, et al. Comparison of pregnancy dating by last menstrual period, ultrasound scanning, and their combination. *Am J Obstet Gynecol.* 187(6), 2002, 1660-6.
- [5]. Bennett KA, Crane JM, O'shea P, et al. First trimester ultrasound screening is effective in reducing postterm labor induction rates: a randomized controlled trial. *Am J Obstet Gynecol.* 190(4), 2004, 1077-81.
- [6]. Mogren I, Stenlund H, Hogberg U. Recurrence of prolonged pregnancy. *Int J Epidemiol.* 28(2), 1999, 253-7.
- [7]. Olesen AW, Basso O, Olsen J. An estimate of the tendency to repeat postterm delivery. *Epidemiology.* 10(4), 1999, 468-9.
- [8]. Divon MY, Ferber A, Nisell H, et al. Male gender predisposes to prolongation of pregnancy. *Am J Obstet Gynecol.* 187(4), 2002, 1081-3.
- [9]. Oberg AS, Frisell T, Svensson AC, Iliadou AN. Maternal and fetal genetic contributions to postterm birth: familial clustering in a population-based sample of 475,429 Swedish births. *Am J Epidemiol.* 177(6), 2013, 531-7.
- [10]. Laursen M, Bille C, Olesen AW, et al. Genetic influence on prolonged gestation: a population-based Danish twin study. *Am J Obstet Gynecol.* 190(2), 2004, 489-94.
- [11]. Stotland NE, Washington AE, Caughey AB. Pre pregnancy body mass index and the length of gestation at term. *Am J Obstet Gynecol.* 2007 Oct. 197(4):378.e1-5.
- [12]. Yudkin PL, Wood L, Redman CW. Risk of unexplained stillbirth at different gestational ages. *Lancet.* 1(8543), 1987, 1192-4.
- [13]. Hilder L, Costeloe K, Thilaganathan B. Prolonged pregnancy: evaluating gestation-specific risks of fetal and infant mortality. *Br J Obstet Gynaecol.* 105(2), 1998, 169-73.
- [14]. Rand L, Robinson JN, Economy KE, et al. Post-term induction of labor revisited. *Obstet Gynecol.* 96(51), 2000, 779-83.
- [15]. Smith GC. Life-table analysis of the risk of perinatal death at term and post term in singleton pregnancies. *Am*

- J Obstet Gynecol.* 184(3), 2001, 489-96.
- [16]. Yoder BA, Kirsch EA, Barth WH, et al. Changing obstetric practices associated with decreasing incidence of meconium aspiration syndrome. *Obstet Gynecol.* 99(5 Pt 1), 2002, 731-9.
- [17]. Caughey AB, Washington AE, Laros RK Jr. Neonatal complications of term pregnancy: rates by gestational age increase in a continuous, not threshold, fashion. *Am J Obstet Gynecol.* 192(1), 2005, 185-90.
- [18]. Caughey AB, Musci TJ. Complications of term pregnancies beyond 37 weeks of gestation. *Obstet Gynecol.* 103(1), 2004, 57-62.
- [19]. Heimstad R, Romundstad PR, Salvesen KA. Induction of labor for post-term pregnancy and risk estimates for intrauterine and perinatal death. *Acta Obstet Gynecol Scand.* 87(2), 2008, 247-9.
- [20]. Herabutya Y, Prasertsawat PO, Tongyai T, Isarangura Na Ayudhya N. Prolonged pregnancy: the management dilemma. *Int J Gynaecol Obstet.* 37(4), 1992, 253-8.
- [21]. Campbell MK, Ostbye T, Irgens LM. Post-term birth: risk factors and outcomes in a 10-year cohort of Norwegian births. *Obstet Gynecol.* 89(4), 1997, 543-8.
- [22]. Alexander JM, McIntire DD, Leveno KJ. Forty weeks and beyond: pregnancy outcomes by week of gestation. *Obstet Gynecol.* 96(2), 2000, 291-4.
- [23]. Treger M, Hallak M, Silberstein T, et al. Post-term pregnancy: should induction of labor be considered before 42 weeks?. *J Matern Fetal Neonatal Med.* 11(1), 2002, 50-3.
- [24]. Caughey AB, Stotland NE, Washington AE, et al. Maternal and obstetric complications of pregnancy are associated with increasing gestational age at term. *Am J Obstet Gynecol.* 196(2), 2007, 155.e1-6.

**How to cite this article:** Padmalatha Dakshnamurthy, Srimathi Jagannathan, Nidhi Sharma, Kannan Rajendran. A study of maternal and fetal outcome in postdated pregnancy. *Int J of Allied Med Sci and Clin Res* 2017; 5(2): 600-606.

**Source of Support:** Nil. **Conflict of Interest:** None declared.