

Original Article

Comparative Study of Expected Date of Delivery on the basis of Last Menstrual Period and Ultrasonographic Evaluation in Pregnancy

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Accurate determination of gestational age is essential in care and management of pregnant woman. The most widely used and accepted method for prediction of expected date of delivery is by the use of Naegele's formula. Present study was done in 500 pregnant women to compare the Naegele's formula and Ultrasound in estimation of gestational age, and to find out the most reliable method. Most of the patients in present study were second gravid in the age group of 20-30 years. In majority of the cases scanning was started in first trimester. In 60% of studied cases the EDD predicted by USG and LMP corresponded to each other within a range of \pm One week. Only 50% of cases delivered within 7 days of EDD calculated by LMP. EDD predicted on the basis of first and second trimester scan didn't differ much but EDD predicted by third trimester scan differ significantly from the first trimester scan.

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Key words : Gestational age, Trimester, LMP, EDD

Accurate determination of gestational age is essential in care and management of pregnant woman. The most widely used and accepted method for prediction of Expected Date of Delivery (EDD) is by the use of Naegele's formula. It is observed that almost 50% of woman deliver within one week of EDD predicted by this method. However, exact date of last menstrual period is essential to use this formula. Most of the woman in our country are still don't bother to remember their LMP, thus using Naegeles formula for calculation EDD becomes difficult. Similar problem arises if patient conceives in lactational amenorrhoea or post pill amenorrhoea. Occasionally, even in woman with known LMP, the biological age of fetus may differ significantly from menstrual age, because the ovulation which has resulted in pregnancy could have taken place long time after menstruation. In woman with irregular menstrual cycle, woman in whom pathological amenorrhoea precedes physiological amenorrhoea of pregnancy or woman who misinterpret implantation bleeding as menstruation in such cases, the value of LMP becomes dubious. Without the knowledge of

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Editor's Comment :

- Ultrasound is simple and non invasive method for accurate assessment of gestational age. First trimester ultrasound provides the most accurate estimation of gestational age.
- Prior to any intervention for termination of pregnancy ultrasonic fetal dating should be employed in all cases where exact date of last menstrual period is not known.

gestational age, the pregnancy cannot be managed properly. Ultrasound has now become an integral part of Obstetrics with the increasing use of Ultrasound, most of the pregnant woman have now two independently derived estimates of delivery dates; one based on ultrasound findings and other on the basis of date of Last Menstrual Period (LMP). Sometimes these dates may vary significantly creating dilemma for the obstetrician.

AIMS AND OBJECTIVE

(1) To compare the predictive value of Naegele's formula and Ultrasound in the estimation of gestational age.

(2) To find out most reliable method of estimation of gestational age.

MATERIAL AND METHOD

The present study was done in Katihar Medical College and Hospital, Katihar from January, 2014 to December, 2014. In 500 pregnant women who attended Antenatal OPD and labour room were included in study, irrespective of their age, parity and religion. Complete details of patient particulars, Obstetrical history, Menstrual history, Past history, Family history,

Personal history, Contraceptive history and Drug history were recorded.

Inclusion criteria :

(1) Woman with known LMP and have normal menstrual cycle of 28 days.

Exclusion criteria :

(1) Woman taking oral contraceptive pills.
(2) Woman with medical or obstetrical complication at the time of examination.

OBSERVATION AND RESULTS

Most of the patients in present study were second gravid in the age group of 20-30 years. In majority of the cases scanning was started in first trimester. In 60% of studied cases the EDD predicted by USG and LMP corresponded to each other within a range of \pm One week. Only 50% of cases delivered within 7 days of EDD calculated by LMP. EDD predicted on the basis of first and second trimester scan didn't differ much, but EDD predicted by third trimester scan differ significantly from the first trimester scan.

DISCUSSION

The purpose of this study was to assess the predictive value of Ultrasonic fetal measurements in estimation of gestational age and its comparison with conventional method of predicting EDD on the basis of LMP.

The observation of this study has been shown in different tables.

Table 1 shows distribution of cases in different age groups. It is evident from this table that incidence of adolescent pregnancy is still high in our state.

Table 2 shows distribution of women according to parity. Primi and second gravida constituted the

maximum number of cases (79%).

Table 3 shows the number of cases scanned in different trimesters. It shows that in majority of cases scanning was started in first trimester and only 95 patients were scanned for the first time in third trimester. O'Brien, *et al* (1980), Benett KA, Crane JM (2004), Max Mongelli, Mark Wilcox (2012) have scanned their patients during first trimester of pregnancy and have found good correlation between crown length and gestational age.

Table 4 shows difference between LMP based EDD and EDD predicted by first trimester Ultrasound. In 60% of cases these two dates corresponded to each other within a range of one week. Correlation between menstrual age and Ultrasonically determined age by Robinson in 1973 concluded that difference between these two mentioned ages was not more than 4 days. Robinson and Fleming in 1975 also found similar result taking crown rump length in consideration.

Kramer, *et al* (1988), Maratha S, Winqate, *et al* (2007) also compared these two dates and concluded that in some cases they correspond to each other and with actual date of delivery, but in others ultrasonically derived date was more accurate.

Table 5 shows difference between LMP based EDD and actual date of delivery. Only 52% delivered within one week of predicted date and 88% delivered within two weeks.

Table 6 shows difference between USG based EDD and actual date of delivery. In 83.6% of cases delivery occurred within seven days of predicted date which is significantly greater than predicted by LMP. Rossavik and Fishburne (1989) found that estimation of gestational age on the basis of LMP is more reliable

Age (in years)	No of cases	Percentage (%)
15-20	105	21
20-30	280	56
30-40	100	20
40-45	15	3
Total	500	100

Parity	No of cases	Percentage (%)
Primi	160	32
Second	235	47
Third	85	17
Fourth and above	20	4
Total	500	100

Trimester	Total no cases scanned	No of cases scanned for the first time
First	220	220
Second	385	185
Third	450	95

Difference (in days)	No of cases	Percentage (%)
Nil	40	8
1-7	260	52
8-14	175	35
More than 14 days	50	10
Total	500	100

Difference (in days)	No of cases	percentage (%)
Nil	30	6
1-7	230	46
8-14	180	36
>14	60	12
Total	500	100

Difference (in days)	No of cases	Percentage (%)
Nil	60	12
1-7	358	71.6
8-14	66	13.2
15 days and above	16	3.2
Total	500	100

than ultrasound dating.

On the contrary, Becke and Nakling (1994) observed that most of the deliveries were significantly closer to USG predicted date than

those calculated by LMP. Similar findings were observed by TM Mongelli, *et al* (2003) and Max Mongelli and J Gardosi (2012).

CONCLUSION

Ultrasound is simple, hazardless and non invasive method for accurate assessment of gestational age. For getting accurate results, Ultrasonic fetal dating should be done in first trimester.

Its predictive value is greater than that predicted by LMP. So, ultrasonic fetal dating should be employed in all cases who are not sure of her last menstrual period. Even in women with known LMP it is wise precaution to assess gestational age ultrasonically prior to any intervention because of the fallacies associated with menstrual period.

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