

**Comparison Between Transcerebellar Diameter with Biparietal
Diameter and Femur length for Gestational Age Measurement
Accuracy in Third Trimester of Pregnancy**

**Thesis Submitted for The Partial Fulfillment for The Requirements of
M.Sc of Obstetrics and Gynaecology**

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2016

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ACKNOWLEDGEMENT

First of all, I would like to thank ALLAH, the source of all knowledge.

*I am heartily thankful to my supervisor **Prof Dr. Maha Mosaad Professor of Obstetrics and Gynaecology, Cairo University**, for suggesting the point of this work, her encouragement, mastery advice, valuable time and effort in making this study possible. I am sincerely thankful for her precious advices and continuous support. I owe her a lot for their precious advice.*

*I am also deeply thankful to **Ass. Prof. Dr. Mariam Abdel Nabi Professor of Obstetrics and Gynaecology, Cairo University**, for her continuous encouragement, assistance and sincere help and endless effort to complete this work.*

*I am deeply indebted and grateful to **Dr. Nevine El Ghamry, Lecturer of Obstetrics and Gynaecology, Cairo University**, for her guidance and valuable advices throughout this study and for her help and effort in the first guiding steps of this thesis.*

*Also, I would like to extend my thankfulness to all **my professors and colleagues in the Department of Obstetrics and Gynaecology, Cairo University**,*

I would like to extend my deep gratitude and cordial thanks to my family and friends for the support and help they provided.

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List of abbreviations

LMP.....	Last Menstrual Period
TCD.....	Transcerebellar Diameter
BPD.....	Biparietal Diameter
FL.....	Femur Length
CNS.....	Central Nervous System
CRL.....	Crown rump Length
Fig.....	Figure
mm.....	Millimeter
GA.....	Gestational age
CA.....	Conceptional age
EDD.....	Expected date of delivery
HC.....	Head circumference
AC.....	Abdominal circumference
PPV.....	Positive Predictive Value
BMI.....	Body Mass Index
DFE.....	Distal femoral epiphysis
CI.....	Cephalic index
IUGR.....	Intra uterine growth retardation

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ABSTRACT

Introduction and aim of the study

Many patients in our country come for their first antenatal care visit in their third trimester not remembering their LMP or their EDD which makes it very difficult for the physician to assess their gestational age .In this study we compare between the Transcerebellar diameter and Biparietal diameter and Femur length in accuracy of assessment of gestational age in third trimester.

Patients and methods

This study included 200 patients sure of their dates and fulfilling the inclusion criteria at the department of Obstetrics and Gynecology , Kasr Alainy Cairo University starting from June 2015 till March 2016,the whole patients were pregnant in their third trimester and the Transcerebellar diameter and Biparietal diameter and Femur length were measured.

Results

TCD was accurate within 1 week in 90% of the cases and was accurate within 3 days in 59% of the cases. While the FL was accurate within 1 week in 80% of the cases and was accurate within 3 days in 46% of the cases. Finally the BPD was accurate within 1 week in 60 % of the cases and within 3 days in 29.5% of the cases.

Conclusion

TCD is the most accurate method for assessment of gestational age in third trimester followed by FL, and the least accurate is the BPD. Also by combining accuracy of TCD (90%) and that of FL (80%) we can be near certain of gestational age in most of our patients even if they are unsure of their dates.

Aim Of The Study

The aim of this study was to detect an accurate method for assessment of gestational age in third trimester of pregnancy comparing the Transcerebellar diameter , Biparietal diameter and femur length.

This study is important especially in our country as many of our patients attend the hospitals without medical record or previous antenatal care visits especially in low socioeconomic standards, not remembering their LMP or their EDD which in return makes it very difficult on the physician to assess the gestational age of the fetus. Uncertain gestational age has been associated with adverse pregnancy outcomes including low birth weight, preterm delivery and perinatal mortality, post term pregnancy and macrosomia.

So our target was to reach the most accurate method to assess the gestational age in third trimester of pregnancy through comparing different methods ,TCD and BPD and FL, among 200 female pregnant in their third trimester sure of their LMP or EDD.

INTRODUCTION

Introduction

The provision of obstetric and neonatal care, as well as the public health monitoring of pregnancy outcomes, relies upon the accurate determination of gestational age. Uncertain gestational age has been associated with adverse pregnancy outcomes including low birth weight, preterm delivery and perinatal mortality, independent of maternal characteristics.

The use of ultrasonography has significantly improved the evaluation of fetal growth and development and has permitted prenatal diagnosis of a variety of congenital malformations. Ultrasonographic fetal biometry is highly reliable in first and second trimester of pregnancy but reliability of any ultrasound method greatly diminishes as gestational age advances, in third trimester, reliability of any single ultrasound parameter alone is poor without correlation with other parameters (**Naseem et al., 2013; Satish Prssad and Likhitha, 2014**).

Many patients in our setup due to socio-economic reasons come for their first antenatal visit in third trimester. Most of them are uneducated come from remote areas. Also many being lactating mothers unsure of their LMP or having irregular cycles because of non availability of any dating scans or earlier ultrasound and uncertainty in LMP, it becomes very difficult to calculate their due dates, so many pregnancies considered to be preterm or postterm are wrongly classified. **(Satish Prssad and Likhitha, 2014).**

In third trimester, various ultrasound parameters including femur length which is the most commonly used parameter for the assessment of gestational age, yet it shows margin of error 2 - 3 weeks from the actual gestational age **(Naseem et al., 2014)**. Also the biparietal diameter (BPD) that is commonly used shows margin of error of 3 – 4 weeks from actual gestation because of the large biological variations in fetal skull shape and size **(Naseem et al., 2013)**. Since the last decades, ultrasound parameter ‘transcerebellar diameter (TCD)’ is considered a more accurate and better predictor of gestational age in both normal and intrauterine growth retardation (IUGR) **(Julia et al., 2012)**. The fetal cerebellum visualized

as early as 10 – 20 post- menstrual weeks. It grows in a linear pattern in the second trimester but the curve flattens in third trimester. Many studies states that TCD normogram predicts gestational age with accuracy of 90% in the third trimester (**Goel et al., 2010**).

In our study, we correlated between the three parameters, Transcerebellar (TCD) and Biparietal diameter (BPD) and Femur length (FL), for accurate determination of gestational age in third trimester of pregnancy.