

قال تعالى

(وَمَا أُوتِيتُمْ مِّنَ الْعِلْمِ إِلَّا قَلِيلًا)

صدق الله العظيم

سورة الاسراء الآية (85)

Dedication

To my loved ones; my parents, for their continuous inspiration and support, my sisters and brothers, and finally... I dedicate this humble effort; to all those who appreciate science...

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Abstract

In ultrasound growth parameters such as femur length (FL) and Biparietal diameter (BPD) are widely used in Sudan for determining the fetal age. The abdomen circumference is also used along with BPD in determining fetal weight. Measuring placental thickness along with these parameters could be of great value.

The main objective of this study was to determine the normal thickness of placenta during second and third trimesters in Sudanese foetuses in order to predict the health of the foetus, and to understand the relation between the placental thickness and growth parameters (BPD and FL).

53 pregnant Sudanese ladies were included in this study all of which were normal cases in the ages between 20 and 43 years of age, in the second and third trimesters checking for antenatal routine ultrasound examinations at Military and Omdurman Maternal hospitals. Every patient with a suspicious history of diabetes, Hydrops, hypertension or liability to fetal anomalies was excluded from the study.

After acquiring the BPD and FL and correlating Gestational Age GA for each patient, the placental thickness was then measured in the longitudinal section using ultrasound investigations.

The normal range of placental thickness was found to be from 25mm to 45mm in the third trimester and from 18mm to 24mm in the second trimester, with a linear correlation between placental thickness and BPD and FL in mm, and gestational ages acquired by them during both 2nd and 3rd Trimesters, and no correlation with maternal age.

Indicating that during the 3rd trimester any thickness above 45mm is considered abnormal and might be a sign of maternal or fetal disease, and a thickness less than 25mm might be the earliest sign for Intrauterine Growth Restriction (IUGR).

ملخص البحث

في فحوصات الموجات الصوتية، عوامل النمو، مثل طول عظم الفخذ و قطر الرأس ، هي عوامل مستخدمة بصورة واسعة في السودان لتحديد عمر الجنين. كذلك محيط البطن يستخدم مع محيط الرأس لحساب وزن الجنين. لذلك فإذا قيس سمك المشيمة مع هذه العوامل جنباً إلى جنب فيمكن أن يكون ذا قيمة كبيرة.

الهدف الأساسي لهذه الدراسة كان تحديد السمك الطبيعي للمشيمة للأجنة السودانية باستخدام الموجات فوق الصوتية أثناء الثلث الثاني و الثالث للحمل، بهدف تقدير الحالة الصحية للجنين. وفهم العلاقة بين سمك المشيمة وعوامل النمو " طول الفخذ و قطر الرأس " .

شملت الدراسة 53 سيدة حامل طبيعية في الثلث الثاني والثالث للحمل تتراوح أعمارهم بين العشرين و الثلاث وأربعين سنة، جميعهن قادمات لفحوصات الموجات الصوتية الروتينية بمستشفى السلاح الطبي و مستشفى أم درمان للولادة. كل السيدات اللاتي كان لديهن تاريخ يحوي أياً من أمراض السكري، إرتفاع ضغط الدم، الإستسقاء الجنيني أو القابلية لأمراض الجنين الخلقية تم إستبعادها من الدراسة.

بعد قياس قطر رأس الجنين وطول فخذ الجنين وحساب الأعمار الجنينية المكافئة لها لكل جنين تم قياس سمك المشيمة في مقطع طولي باستخدام الموجات فوق الصوتية.

وجدت الباحثة أن السمك الطبيعي للمشيمة ينحصر ما بين 25ملم إلى 45ملم في الثلث الثالث، وما بين 18ملم إلى 24ملم في الثلث الثاني. مع وجود علاقة خطية بين طول الفخذ وقطر الرأس بالملمتر والأعمار الجنينية المصاحبة لها مع سمك المشيمة أثناء الثلثين الثاني والثالث، وعدم وجود علاقة خطية بين السمك و عمر الأم.

مما يشير إلى أنه خلال الثلث الثالث للحمل أي سمك فوق 45ملم فهو يعتبر غير طبيعي ويمكن أن يكون مؤشراً لأمراض عند الأم أو الجنين، و أي سمك تحت 25ملم يمكن أن يكون أول مؤشر لتخلف نمو الجنين داخل الرحم.

Abbreviations

AC : Abdomen Circumference

BPD : Bi parietal Diameter

U/S : Ultrasound

GA : Gestational Age

CRL : crown – rump length

Coeff of var : Coefficient of variation ($= \text{SD}/\text{mean} \times 100$)

CMV : cytomegalo virus

EDC : Expected date of confinement

Fl : Femur length

HC : Head Circumference

IUGR : intrauterine growth Retardation

LMP : last Menstrual Period.

Mean : arithmetic Average of a given group of data

OFD : occipito Frontal Diameter

PT : Placental Thickness

SD : Standard Deviation

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