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وصف تأثير مرض السكري في النساء في ظهور تغيرات مظهرية ونسجية في المشيمة

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**Description effect of diabetes in women in
appearance of morphological and histological
changes in the placenta**

Athesis

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الفصل الاول

1. المقدمة Introduction

يعدُّ مرض السكريّ من المشاكل الصحية المهمة، ومن بين الأمراض غير المعدية (NCDs) Non- communicable diseases التي تحتل الصدارة عالمياً. فقد تضاعفت حالات مرض السكريّ في البلدان المتوسطة والمنخفضة الدخل بعد ان كانت 108 مليون حالة في عام 1980 ووصلت الى 422 مليون مصاباً بالسكريّ في عام 2014 (World Health Organization,2016). كذلك زادت حالات مرض السكريّ في العراق بعد عام 2003 وبلغت معدل الانتشار 42.241/ 1000 حالة في عام 2015 (Hussain and Lafta,2019).

يعودُ خطر مرض السكريّ جراء ما يسببه من مضاعفات في الاوعية الدموية الدقيقة والتي تؤدي الى ظهور حالات أعتلال في شبكية العين Retinopathy، الكلى Nephropathy، الاعصاب Neuropathy وامراض القلب والاعوية الدموية (Al Ani,2011).

ترتبط البدانة (السمنة) Obesity لدى النساء خلال مدة الحمل بخطر الإصابة بسكر الحمل Gestational Diabetes (GD)، ويظهرُ تأثير مرض السكريّ لدى الاطفال المولودين لأمهات مصابات بالسكريّ، إذ يؤدي سكر الحمل الى عملاقة Macrosomia الوليد نتيجة لزيادة تدفق الكوكوز من الدورة الدموية الأم الى الجنين عبر المشيمة ، أوقد تظهر لديه ما تسمى بمتلازمة الضائقة التنفسية Respiratory distress syndrome (Jarmuzek et al.,2015).

تناولت الدراسات الحديثة ومنها دراسة (حمزة،2014) استقصاء حالات الحمل المعقدة التي ترتبط بمشاكل صحية لدى الأم، الى دراسة المشيمة Placenta لدورها الكبير في تكوين الجنين،

إذ شخص تأثير ضغط الدم المرتفع ، فرط إفراز الدرقية Hyperthyroidism، فضلا عن مرض السكري في ظهور تغييرات مظهرية ونسجية في المشيمة وادغام الحبل السري فيها.

كما ثبت تأثير داء القلب الروماتزمي Rheumatic heart disease (RHD) في تضرر خلايا البطانة للأوعية الدموية في المشيمة فضلاً عن تأثيرها في وزن المشيمة والوليد (AI- Assaf et al.,2016). وقد درس عامل النمو البطاني الوعائي Vascular Endothelial Growth Factor (VEGF) وتأثيره في الأوعية الدموية في مشيمة النساء المصابات بالسكري من قبل (Mahmoud,2018). لذلك اهتمت الدراسة الحالية بتمييز تأثير السكري في ظهور تغييرات مظهرية ونسجية في المشيمة وملاحظة تأثير احد عوامل تكوّن الاوعية الدموية Angiogenesis وهو عامل نمو الأورمة الليفية القاعدية basic Fibroblast Growth Factor (bFGF) والعامل المشبط للموت الخلوي المبرمج (الذوي) Apoptosis وهو B cell lymphoma-2 (Bcl-2)، إذ شملت جوانب الدراسة ما يأتي:-

1- تشخيص التغييرات المظهرية والنسجية في مشيمة النساء المصابات بالسكري ومقارنتها بمشيمة النساء الاصحاء، اعتماداً على الملونات الاعتيادية والخاصة.

2 - دراسة كيميائية نسجية مناعية لتشخيص مستوى bFGF و Bcl-2 في المقاطع النسجية للمشيمة.

Abstract

The present study aimed to describe the morphological and histological changes that occurred in the placenta of women with diabetes, as well as the immunohistochemical examination to note the changes in the level of basic Fibroblast Growth Factor (bFGF) and the inhibitory factor for programmed cell death B cell lymphoma-2 (Bcl-2) in the placenta of the women with diabetes and compare the results obtained with healthy ones .

The study was conducted on 40 diabetic women and 20 healthy women, and placenta samples were obtained from the maternity halls of Medical city, Baghdad Teaching Hospital and Al-Olwiya Maternity Hospital.

The phenotypic description of the study samples showed that there was no significant difference in the shapes of the placenta, insertion of the umbilical cord to the placenta and the pattern of distribution of blood vessels on the chorionic plate between the two groups.

The incidence of disc, oval, and triangular shapes of the placenta in the affected women was as follows: - 65%, 30%, and 12.5%, respectively. In healthy women, it was as follows: - 55%, 30%, and 5% in the same previous sequence, with irregular samples being diagnosed, it was 2.50% in the group of women patients. The incidence of eccentric, central and marginal insertion appeared at a rate of: - 40%, 30%, and 25% in the affected women, respectively, while the rates in healthy women were 55%, 20% and 25%, respectively, and the cases of furcate insertion cases were diagnosed at 2.5% and the 2.5% of Velamentous insertion in diabetic patients. The results included a distribution vascular pattern was dispersal and magistral pattern in the patients' placentas of the sick

women in the proportions: - 45% - and 55%, respectively, while it was 65% and 35% in the healthy group and the same previous sequence.

The phenotypic results also showed a clear significant difference in the weight of the placenta, birth weight and the number of cotyledons between the two groups under study, as the mean weights of placental samples for women with diabetes was 631.65 g and a standard deviation of 120.87, which is higher than the of mean the weights of the placenta for healthy women, which amounted to 547.26 g, with a deviation. A standard of 106.75 . On the other hand, the current study confirmed the increase in birth weight for mothers with diabetes, as the mean birth weights reached 3403.25 g, with a standard deviation of 578.00, which is higher than the mean weights born to healthy mothers, which amounted to 2985.00 g and a standard deviation of 294.29. The phenotypic study showed that the mean number of cotyledons for the placenta of diabetic patients was 21.70 lobes, with a standard deviation of 7.01, which is higher than the mean number of cotyledons for healthy women, which amounted to 14.65 lobes, with a standard deviation of 3.49.

As for the histological study of the placenta of diabetic women, it recorded in its results a number of histological changes represented by the emergence of tissue changes in the amniotic membrane of the placenta. The number of terminal villi was reduced ,with increase in the presence of large immature villi in the placenta of diabetic patients in compared to the placenta of healthy women. A clear increase in the thickness of the basement membrane on which the trophoblast cells are based externally to the villi, as well as an increase in the number of syncytial nodes, an increase in fibrin-like deposits, vascular congestion and the amount of edema in the villous stroma, and the number of blood

vessels and their branches in the villi also increased according to the results.

The third part of the study results is the immunohistochemistry. It was found that the level of bFGF in the syncytial trophoblast cells and endothelial cells of the chorionic blood vessels in diabetic women is higher than its level in the placenta of healthy women. In 55% of the samples of the sick women showed a positive detection of bFGF, while 45% of the samples in the same group gave a weak detection. In healthy women, 30% of them gave a negative detection of bFGF, and 70% of the samples of the same group showed a weak positive detection, so the difference was significant and high between members of this group. Whereas, the level of Bcl-2 in syncytial trophoblastic cells is lower in the placenta of diabetic women compared to that of healthy women. Where the intensity of detection ranged between weak, medium and high for Bcl-2, with rates arranged as follows: - 10%, 60% , 30% respectively, while these ratios in samples of healthy women who showed positive detection for Bcl-2 as follows: - 40 % , 45% , 15% respectively, and the difference was significant between members of the same group.