Study of some parameters of pregnant women with diabetes as well as anemia

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Abstract

In the Yarmouk hospital laboratory, 120 blood samples were withdrawn from pregnant women with diabetes and 55 blood samples of them are pregnant women with diabetes and anemia, according to the methods used in the analysis. Results were recorded and fixed in figures for the purpose of distinguishing between the vital functions to study and recommendations which helps pregnant women to prevent diseases and to be careful to health culture for motherhood and free childhood from the diseases. The study shows hemoglobin levels in the blood as well as the level of blood sugar for women who are normal and who have anemia as well as diabetes.

Introduction

Gestational Diabetes (Pregnancy sugar) is high sugar that result during a woman's pregnancy. It occurs as a result of an object. The carrier does not deal in a manner correct with carbohydrate turns into sugar in the body to supply it with energy. Pregnancy sugar is diagnosed starting from the middle of the fifth week of the month by analyzing sugar for all pregnant women. The least serious type of diabetes is that it can be cured in a self-reliant manner.

Figure (1) A longitudinal section of the body shows red blood cells
Mother’s position for her child and higher blood sugar levels than normal levels because of the inability of the pancreas gland to secrete enough insulin to burn sugar Overload and other reasons. (2) There are many causes of gestational diabetes, some are hereditary and this is confirmed when a member of the pregnant mother’s family has diabetes Type II diabetes, smoking or passive smoking, increasing weight from natural causes increases chances of pregnancy diabetes, A key factor that raises the risk of this condition is the occurrence of pregnancy. The age of thirty-five, and ovarian disease has a direct link. The body's resistance to insulin leads to disease with raise rates of glucose in the mother's blood. (3)

Symptoms of gestational diabetes may not appear on women, and if its appear will be lost, includes the following tags: (4)

- Feeling tired.
- Extreme thirst.
- Urination in large quantities.
- Blurred vision.
- Frequent infection of fungus.

The risks associated with women's diabetes during pregnancy to which they may or may be exposed to their genes similarly, Risks associated with high blood sugar levels in women during the period uploaded by problems with the mother, increased likelihood of pregnancy poisoning and high pressure, frequency of fungal infections, and the process of measurement or difficulty (5)

On the advice for patients follow-up periodic examinations were required here to close the time of follow-up once every two weeks and follow-up is stronger during the first three months and in recent months, especially from the seventh month to the ninth because the pregnant woman may need to enter the caesarean section. (6)

As for the problems of the fetus, the size of the fetus can be increased from normal (Macrosomia), and increases the amount of amniotic fluid around the embryo Failure to remove the head of the embryo and its presence may result in multiple water conditions Around it, as well as premature birth or breathing problems or problems after Such as bronchitis, low blood sugar and cramps. More about premature birth.

The first step cure in treating gestational diabetes is to adjust the diet

To maintain a moderate sugar level in the blood and avoid any complications

Pregnant women and their offspring. (7)

One of the most important amendments to the women's diet

Pregnant, which is the key to control the sugar rates control quantity

Starch in their diet.

A woman is taking medications for oral diabetes, it should replace it with insulin injections during pregnancy after consultation with the doctor Specialist. While ensuring that blood sugar levels are under control, especially before
the embryo’s vital organs begin to form, such as the brain Spinal cord and heart. The sugar levels are not regularized. (8)

Many people with anemia are feeling with fatigue, but many people may not be able to fully know anemia. Is a disease characterized by a decrease in the healthy red cells in the body and a few amount of hemoglobin in red blood cells. (9)

Reddish (Hemoglobin) is a protein that carries inside red blood cells and contains iron atoms. Take oxygen from the lungs and deliver it to the rest of the body to stay alive. Two identical proteins consists Hemoglobin. Both proteins must be present synthesizes hemoglobin to assist load and give oxygen to the cells of the body. One of the two proteins called alpha, the other beta. Before birth, protein beta is not produced. But there is another protein to replace it called gamma, which is found only in the fetal age, and acts as a beta substitute until the time of birth. Hemoglobin as proteins, synthesis and stored within DNA. The human's body has four genes for guidance alpha protein synthesis. Two others supervision the manufacturing of the experimental chain, there are also two additional genes to Controlled the production the fetal gamma chain. The alpha and beta series are produced together, due to various numbers of genes. Then protein chains are bound to regenerate red blood cells wheresoever life. (10)
Causes of anemia\(^{(1)}\)

- Severe bleeding during previous births or as a result of accidents.
- Bleeding of menstruation or internal bleeding.
- Donating large quantities of blood.
- Pregnancy.
- Malnutrition.
- Genetic Disease.

Factors that make pregnant women more susceptible to anemia:

- Pre-pregnancy, iron deficiency.
- A disease causing anemia (eg, sickle cell).
- A dysfunction in the digestive system inhibits absorption of iron and nutrients.
- Pregnancy with more than one fetus (twins and more), to increase their need for iron.
- Anemia in the previous pregnancy.

Acute anemia is associated with some of the following symptoms:-

1 - Feeling tired with constant fatigue and inability to move the head, in addition to the difficulty of moving from the bed, especially in the morning.

2 - Feeling dizziness and constant dizziness.

3 - Noticeable fluctuations in mood, especially in pregnant women.

4 - Weakness in the formation of nails and the occurrence of fragility and break it.

5 - Great difficulty in breathing, especially during exercise or when climbing stairs.

6. Exposure to fainting and unconsciousness at times.

7 - Inability to focus with severe weakness in sexual ability and low ovulation in women, which reduces the chances of pregnancy.

8. Many women suffer from the problem of hair loss.

9. Cooler in the limbs, especially in the toes as well as in the fingers of the hand.

10 - Change the color of the skin color yellow with the incidence of paleness.

11 - The incidence of severe bleeding in some areas of the body, especially in the bowel and stomach also.
12 - Disturbances in the number of heartbeats, with the occurrence of headaches persist in many cases.

13 - Marked increase in weight due to excessive intake of a large amount of food, especially sugars.

14 - Delay in wound healing with severe infections.

15 - Severe pain in the chest area.

16 - The incidence of severe depression with bad mood swings, especially in times of menstruation.

The main causes of anemia are:

1 - Lack of iron element in the body and therefore result in a decrease in the amount of production of hemoglobin, which plays an important part in the formation of red blood cells.

2 - Lack of vitamin B12 amount of deficiency in the amount of folic acid in the body, and will certainly result in a decrease in the number of red blood cells produced by the body.

3 - The injury of humans with some serious diseases resulting in anemia in the blood and the most important of these diseases are cancer and rheumatoid as well as diseases of arthritis or failure of kidney function, all of this decrease in the amount of red blood cells in the body and to lead risk of anemia.

4 - The eradication of some parts of the body, such as stomach and intestine, resulting in the inability of the body to absorb important nutrients for the body for the production of red blood cells.

5 - Genetic factors resulting in a defect in the proportion of hemoglobin in blood and therefore result in lack red blood cells in a natural way. Blood problems accompanied by a defect and a break in the red cells.

6 - Blood cells and bone marrow disease resulting in anemia, such as leukemia, which is always accompanied by a defect in the number of red blood cells produced by the body.

Transfusion: It must take care of anemia early or in the medicines disbursed is due to the attempt to reduce the transfer of blood; because of some of the risks, but there are some cases that require immediate blood transfusion, and blood transfusion is the only treatment.

• Severe bleeding.

• The rate of anemia is low, or drugs do not work properly.

Risk of anemia:

• The negative effect on the bearing function and muscle capacity.

• Inability to exercise.

• Causes of low birth weight.

• Iron deficiency in children.

• It is difficult for the mother to produce milk after birth.
Diabetes and anemia

Diabetes gradually causes anemia, but some complications and conditions associated with diabetes can contribute, like, kidney diseases related to diabetes, neuralgia can contribute to anemia infect, by taking some oral diabetes drugs can increase the risk of anemia, and diabetics can suffer from anemia due to lack of good eating, or because of absorption of nutrients condition. (14)

Erythropoietinis hormone secretes Normally by the kidney, that stimulates the bone marrow to produce red blood cells, when diabetic happen nephropathy, damage small blood vessels that filter wastes from the body and start "leaking" substances (like a protein) in the urine. Erythropoietin hormone, leading to anemia, its shown some studies that low production of Erythropoietin anemia occurs earlier in diabetic patients and kidney disease, compared to those who suffer from kidney disease and lack of diabetes, and can lead to both glucose levels In the blood High blood pressure, damage to the kidney. (15)

Neuropathy and anemia

People there a type neuropathy known autoimmune neuropathy, the body may be unable to correctly signal the kidneys to produce extra erythropoietin, where they develop anemia, neuropathy shows with diabetes, people with diabetes are more likely For heart failure, or the heart cannot able to pump enough blood to meet the needs of the organs, reduced heart duty can lead to impaired kidney function, as many people suffering from heart failure are deficient in nutrition, each of these can contribute to poverty Blood, and about 20% of patients with thalassemia heart Suffers from anemia. Many people with diabetes have a nutrient deficiency that lead to anemia, and nutrient lack can occur either by not tack enough nutrients (because they limits their dietary choices), or because of the inability of the body On the absorption of nutrients that are addressed, and can cause iron deficiency and vitamin B12, vitamin B6 and folic acid anemia, and one of the diseases that affect the ability body's to absorb nutrients is the disease of digestive disorders, in the digestive disease cannot tolerate the body gluten, About 1 in 20 people have diabetes Suffering from gastrointestinal disorders. (16)

The method of work

Screening of sugar by finger (Papillary blood test - capillaries):

First must turn on the Glucometer and insert the slide into the dedicated slot.

After that, you prick the tip of your finger with your own needle. But it is always a must of an Ante. Except in cases

Next step of blood pressure on both sides of the finger

This should then be brought closer to the cats by the cats (with attention to keeping them placed inside the device).

The device displays the blood glucose level within several seconds. (17)

After completing the examination, place a weak piece of cotton on the point to stop blood bleeding and absorb (clean) the rest of it.

Regular blood sugar (intravenous blood glucose) is performed similar to other routine blood tests. After the blood is drawn into the test tube, it is sent to the biochemical laboratory. This is not difficult to get immediate results.
Blood samples were withdrawn from 120 patients at the Yarmouk Hospital Laboratory. The percentage of hemoglobin was calculated according to the method recorded by using the absorption device 500 nm. (18,19)

**Results**

Through the results figures found there are indications in blood glucose values in pregnant women with diabetes and pregnant women with anemia. The results were recorded to observe the changes due to the presence of these diseases and their impact on the health of pregnant women and children.

Examination of anemia of pregnant women:

• In the first weeks of pregnancy, the doctor will perform a blood test to confirm the hemoglobin in the analysis 110 grams during the first trimester and 105 grams in the second and third trimester, and arrange for re-examination within two to four weeks to verify the effectiveness of treatment.

• Anemia is required during the 28 weeks of pregnancy. This is verified by measuring the proportion of ferrite (a protein found in cells; it is responsible for storage and release of iron). During pregnancy, the ferrite increases in the body, Up to half the amount during the 32 weeks of pregnancy. If the results of the analysis of ferrite less than 30 micrograms will require treatment with drugs.

**Figure (2) shows blood glucose range m mol/L**

<table>
<thead>
<tr>
<th>Blood sugar mm/L</th>
<th>Before meals</th>
<th>After meals</th>
<th>On Waking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Children</td>
<td>7.2</td>
<td>5.5</td>
<td>6</td>
</tr>
<tr>
<td>Type 1</td>
<td>5.3</td>
<td>6.2</td>
<td>6.2</td>
</tr>
<tr>
<td>Type 2</td>
<td>6.1</td>
<td>8.2</td>
<td>0</td>
</tr>
</tbody>
</table>
Figure (3) Relation between hyper and hypo blood glucose in pregnancy

<table>
<thead>
<tr>
<th>Glucose level mg/dl</th>
<th>Hyperglycemia pregnant average</th>
<th>Hypoglycemia pregnant average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Series1</td>
<td>272</td>
<td>69.2</td>
</tr>
</tbody>
</table>

Figure (4) shows deference’s with many Hb value in blood sample healthy and unhealthy pregnant

<table>
<thead>
<tr>
<th>Hb range g/dl</th>
<th>(Hb) Pregnant women who do not suffer from anemia</th>
<th>(Hb) Pregnant women suffer from anemia</th>
<th>The difference in the value of Hb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total mg/l</td>
<td>232</td>
<td>158.3</td>
<td>73.7</td>
</tr>
<tr>
<td>Averages mg/l</td>
<td>11.6</td>
<td>7.9</td>
<td>3.7</td>
</tr>
</tbody>
</table>
Conclusion and recommends

It's recommended by NICE were listed for all types. In addition, the goal of the International Diabetes Federation is determined for people who do not have diabetes.

This table shows general instructions. The individual goal set by the health care team is the goal. (20)

Ways to prevent anemia:

• Maintain hemoglobin screening.

• Eat balanced food items.

• Focus on the sources of vitamin C; improves the absorption of iron.

• Avoid exposure to infectious or anemic diseases (e.g., internal or external bleeding) or certain infectious diseases (such as malaria, or viral infections) that weaken red blood cells.

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