INTRODUCTION
Pregnancy is a physiological state of the female during the reproductive period associated with physiological changes in the functioning of the organs. The endocrine system undergoes functional changes in pregnancy. The pituitary gland is an endocrine gland which also undergoes physiological and morphological changes in pregnancy. Prolactin is synthesized in the pituitary, which is a polypeptide hormone with 198 amino acids. Lactotrophic cells account for 20% of the population of hypophysis cells in which prolactin is synthesized.

The level of prolactin increases progressively in pregnancy to the east. At the east, the concentration of prolactin decreases, but immediately after birth again increases (1). Hyperprolactinemia in pregnancy is possible due to hyperplasia and hypertrophy of lactotrophic cells. It is suggested that hyperplasia and hypertrophy of the lactotrophic cells is caused by the estrogen, placental steroids, and by the thyrotropic stimulating hormone (TRH). Prolactin concentrations in the amniotic fluid are high up to (2000-3000 ng/ml) in the week (16-20) of the gestation. After the 20th week of gestation, the level of prolactin decreases. These facts indicate that the source of prolactin in the amniotic fluid is decidua of the uterus (2).

Discussion: The level of progesterone is raised due to development of placenta during pregnancy and increase of fetal area of suprarenal gland of fetus. The level of prolactin during pregnancy is raised due to effective stimulated placental steroids, estrogens, and releasing tretrop hormone in hypothalamus on one side and due to presence of prolactin decidua during pregnancy. (t= 3.174, p<0.05). While comparing the prolactin values with pregnant and non-pregnant women, we have ascertained that the level of prolactin in significant way was higher with pregnant women (q=10.707, p<0.001). While comparing the progesterone values with pregnant and non-pregnant women, we have ascertained that the level of progesterone in significant way was higher with pregnant women (q=10.707, p<0.001).

Conclude: We conclude that the level of prolactin and progesterone is raised in significant way during the development of pregnancy. The values of progesterone and prolactin at pregnancy are raised in significant way comparing with non-pregnant women.

ABSTRACT
The aim: This study was designed to evaluate progesterone and prolactin levels during normal pregnancy development and determine progesterone and prolactin levels in pregnant women and non-pregnant women.

Material and methods: The study included 60 women with normal pregnancy and 60 non-pregnant women in the reproductive phase. In both groups, blood was obtained from the cubital vein to determine the concentration of progesterone and prolactin. Pregnant women with normal pregnancy are prospectively selected by eliminating all patients with pathology of pregnancy from the study. Pregnant women are selected prospectively by eliminating endocrine pathology.

Results: First results showed that the level of progesterone in significant way is raised during the pregnancy (t=2.589, P=0.0406 p<0.05). Prolactin is raised in significant way during the development of pregnancy. (t=3.174, p 0.0252, p<0.05). While comparing the progesterone values with pregnant and non-pregnant women, we have ascertained that the level of progesterone in significant way was higher with pregnant women (q=10.707, p<0.001). While comparing the prolactin values with pregnant and non-pregnant women, we have ascertained that the level of prolactin in significant way was higher with pregnant women (q=10.707, p<0.001).

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women and postnatal women enable the formation of reference values in this period of life (3). The level of prolactin in the amniotic fluid is higher in relation to the level of prolactin in the mother's blood (4). The high level of prolactin in pregnant women predicts the function of pancreas β cells and the risk of prediabetes and diabetes mellitus (5). Progesterone is the natural gestagent which consists of the nucleus of cyclopentan perhydrophenanthrene with 21 carbon atoms. Progesterone synthesis occurs in placental sincicriotrophoblast cells with the cholesterol hydroxylation process which results from the pregnancy circulation. The amount of progesterone concentration depends on the size of the placenta (6). Progesterone concentration in plasma progressively increases from the first quarter to the east, at a concentration of (40-180) ng/ml. The daily placenta produces close to (250 - 350) mg of progesterone. Approximately 90% of progesterone passes into the mother's blood circulation while 10% passes into the bloodstream of the fetus. Low progesterone values indicate the risk of early failure in pregnancy (7). Progesterone is a useful marker predicting failures in early pregnancy (8).

Prolactin plays an important role in the normal course of pregnancy. Studies show that normal prolactin values result in higher rates of blastocyst implantation and normal pregnancy (9). Prolactin plays an important role in the metabolism of electrolytes, water and homeostasis of osmotic pressure in the fetus, which occurs in the middle of the fetoplacental membrane (10). Fetal prolactin plays an important role in the maturation of the fetus's lungs. Studies have shown that low prolactin, progesterone values have been met in cases of spontaneous abortion with genital infection (11). Also low prolactin and progesterone values have been found to increase the fetus's stagnation. Research has shown that the highest prolactin level is found in maternal and fetal serum with amniotic membrane ruptured compared to the control group (12). Researchers have shown that in normal births and emergencies (emergency section) the prolactin values are higher in comparison to births with the iterative cesarea section (13).

Determination of prolactin and progesterone levels during normal pregnancy is of particular interest in determining reference values, whereby fetal and maternal prognosis is possible.

**Purpose of the work**

The purpose of the study is to analyze the level of prolactin and progesterone during normal pregnancy development, and to determine the ratio of these parameters between pregnant and non pregnant women.

**MATERIAL AND METHODS**

The study included 60 pregnant women with normal pregnancy and as 60 non-pregnant patients at the reproductive stage. Both groups received blood from the cubital vein to determine prolactin (PR) and progesterone (PG) concentrations. The group of pregnant women with normal pregnancy is prospectively selected by eliminating all pregnancy data between clinical, laboratory, and ultrasonographic examination. The age of gestation is determined by the method of the last menstruation as well as with the biometry of the fetus. Non-pregnant women were also selected prospectively including all women with normal hormonal status. Homonal status is defined: the folliculo stimulating hormone (FSH), luteinizing hormone (LH), estradiol (E2), progesterone (Pg), prolactin, testosterone, and rostendion and dehydroepiandrosterone sulphate.

All endocrine pathologies have been eliminated from the study, as well as patients who have used these medications (estradiol, progesterone, TRH hormone, thyrostimulant TSH hormone, metoclorpramine, antidepressants, catecholamine).

Prolactin is determined by the ELISA (enzyme linked immunosorbsent assay) method of the sandwich type that is the quantitative determination of prolactin. Progesterone is determined by the ELISA type of competitive type.

**RESULTS**

<table>
<thead>
<tr>
<th>Pregnancy (P, W)</th>
<th>0-10</th>
<th>11-20</th>
<th>21-30</th>
<th>31-40</th>
</tr>
</thead>
<tbody>
<tr>
<td>PG (ng/ml)</td>
<td>26.69±6.90</td>
<td>88.34±19.71</td>
<td>89.24±24.10</td>
<td>222.0±47.09</td>
</tr>
<tr>
<td>PR (ng/ml)</td>
<td>36.97±5.43</td>
<td>56.07±11.27</td>
<td>138.97±19.43</td>
<td>166.2±23.96</td>
</tr>
</tbody>
</table>

Graph 1: Linear graphical progesterone and prolactin level based on gestational weeks of normal pregnancy (X ± SEM).

Graph 2: Linear graphic progesterone level display based on gestational weeks of normal pregnancy (X ± SEM).
Graph 3 Linear graphical presentation of prolactin levels based on gestational weeks of normal pregnancy (X ± SEM).

Statistics: Graph Pad Instat 3
One sample t test
Progesterone: t = 2.589, p = 0.0406 p <0.05
One sample t test
Prolactin: t = 3.174, p = 0.0252 p <0.05

CONCLUSION
The level of progesterone and prolactin in a linear manner significantly increases during normal pregnancy. There is no significant correlation in progesterone and serum prolactin during normal pregnancy.

Table 2 Comparison of Progesterone and Prolactin Levels in Pregnant and Pregnant Women (40 (X ± SEM).

<table>
<thead>
<tr>
<th>The patient</th>
<th>PG (ng/ml)</th>
<th>PR (ng/ml)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not pregnant</td>
<td>2.44±1.01</td>
<td>8.81±0.61</td>
</tr>
<tr>
<td>Pregnant</td>
<td>90.38±14.47</td>
<td>92.82±9.89</td>
</tr>
</tbody>
</table>

Graph 4 Progressive and prolactin level graphing of pregnant women and pregnant women (X ± SEM).

Graph 5 Comparison of progesterone and prolactin values in pregnant and non pregnant women (X ± SEM).

Graph 6 Comparison of progesterone and prolactin values in pregnant and non pregnant women (X ± SEM).

Graph 7 Comparison of progesterone and prolactin values in non-pregnant women and pregnant women (X ± SEM).

CONCLUSION
Progesterone levels significantly (p <0.001) are higher in pregnant women compared to non-pregnant women. The level of prolactin significantly (p <0.001) is higher for pregnant women compared to non pregnant women. One-way Analysis of Variance (ANOVA) The P value is < 0.0001, considered extremely significant.

Variation among column means is significantly greater than expected by chance. Tukey-Kramer Multiple Comparisons Test
If the value of q is greater than 3.900 then the P value is less than 0.05.

DISCUSSION
Pregnancy as a physiological state of pregnancy is accompanied by changes in the functioning of organs. Endocrinological changes are the main changes in pregnancy that occur immediately after blastocyst implantation. With the development of synciitrophoblast and trophoblast, the level of hormones begins to change rapidly. Placenta is a body that develops in pregnancy and plays important functions which are: endocrine, respiratory, nutritional and protective function.

In our research we note that the level of prolactin increases linearly during pregnancy. Our results match the author’s data (1). Increasing the level of prolactin during pregnancy is explained by the fact that placental steroids as well as thyreotrop realizing hormone (TRH) fact on the stimulatory hypothalamus. In the increase in the level of prolactin in pregnancy, it also contributes to prolactin of deciduous origin,
which plays an important role in regulating electrolyte metabolism and body fluctuations in the fetus. This mechanism is developed through the fetoplacental membrane (10).

Studies have shown that prolactin plays an important role in regulating fetal metabolic processes. Prolactin receptors are detected in fetal tissues, suprarenal, pituitary, kidney, thymus, pancreas, lungs, and skin. These data indicate the importance of prolactin in the growth and metabolism of placenta and fetus (14). Increased fetal blockage has been detected by suppression and decreased prolactin synthesis (15). Also in premature birth, low prolactin levels were found in comparison to birth in the term (12).

In our research we have also discovered that progesterone progressively increases with the age of gestation. Our results match the authors' results (16, 17). The highest level of progesterone in pregnant women are significantly higher. Our findings match pregnant women we have concluded that the level of prolactin in pregnant and non pregnant women, we have found that progesterone and prolactin levels are significantly higher in pregnant women.

By comparing the progesterone values in non-pregnant and pregnant women we have concluded that the level of prolactin in pregnant women is significantly higher. Our results match the authors' results (1). The highest level of prolactin in pregnancy is explained by the fact that placental steroids and amniotic fluid levels. AJOG; 1975; 123 (8): 834-8.


Lindsay H, John A D S, Michael E S. Plasma prolactin concentrations after caesarean section or vaginal


How to cite this article:

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