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## Study the Effect of Contraceptive drug on Some Biochemical Parameters Of the Women in Tikrit City

### ABSTRACT:

**Background** Progestational agents, such as megestrol acetate and medroxyprogesterone acetate, are effective hormonal treatments for metastatic breast cancer in postmenopausal women.

The aim of this study is knowing effect the progestational agent(only pills),(depto medroxyprogesteron) (DMPA) in some biochemical parameters (TOtal protein, globulin, ALP, TSB, uric Acid, creatinine, and lipid levels (Triglycerides, Cholesterol) in the woman.

**Patients & Methods:** This study included ( 100 ) samples of women used progestational agents in (Clinics) (20) blood samples pulled from healthy women as Control sample. The study has carried out in Clinics from (March 2017) to (September 2017).. The samples were divided into three groups; the first group: - (40) women used a progesterone only pills (POPs) the second group: -(40) women used Depot medroxyprogesteron acetate injection(DMPA). The third group was the healthy women(control).

**The Results:** The results of the study indicated a significant decrease in the Concentration of the Total Protein and Globulin levels at level (P <0.001) and there's no significant differences in activity ALP and TSB Concentration at level (P <0.001) The results revealed a significant decrease in the Concentration of the Uric acid at level (P <0.001) and a huge increment in the Concentration of the creatinine at level (P <0.001) in approach to the healthy group. while the results showed a rise in the concentration level of Cholesterol, Triglyceride when compared to the healthy group.

**Conclusion** in this study there are significant decrease in the concentration of the Total protein, Globulin ,uric acid and increase in the concentration in the creatinine when compared to the healthy group, While there are rise in the concentration lipid levels(Triglycerides, Cholesterol)when compared with healthy group

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## Introduction

### Progestational agents:

Progestational agents, such as megestrol acetate and medroxyprogesterone acetate, are effective hormonal treatments for metastatic breast cancer in postmenopausal women. Clinical trials of these agents have demonstrated that 30% to 60% of patients will experience objective tumor response, depending on pretreatment prognostic variables. Progestin is the generic name for synthetic progesterone. A woman's body naturally produces this steroid hormone during the menstrual cycle. Progestational agents have many important functions, including regulation of the menstrual cycle, treatment of dysfunctional uterine bleeding, prevention of endometrial cancer and hyperplastic precursor lesions, and contraception.(1)

### Progestin-only Pills

The progestin-only pill differs from combined oral contraceptives in that it contains only one hormone, called progesterone. (The combined pill contains both estrogen and progestin.) All the progestin only contraceptives are approved for patients at higher risk of deep venous thrombosis and pulmonary embolism (DVT/PE), such as patient with malignancies. They are not associated with an increased risk of

high blood pressure and cardiovascular disease.(2) The progestin-only methods of contraception work by a similar mechanism. Progesterone suppresses gonadotropin-releasing hormone, thereby inhibiting the release of follicle-stimulating hormone and luteinizing hormone. This action prevents ovulation.(3)

### Side Effects

Most side effects of the progestin-only birth control methods go away after the first few months of use. Side effects include: .(4)

- Irregular menstrual cycles.
- Spotting or bleeding between menstrual periods.
- Sore breasts.
- Headache.
- Nausea.
- Dizziness.(4)

### Injectable Contraceptive (Depot Medroxy progesterone Acetate)

Depot Medroxy progesterone Acetate is given as an intramuscular injection, which is administered every 12 weeks.(5) The standard dose of 150 mg is injected intramuscularly every three months. Women who are breast-feeding can receive injectable medroxy progesterone acetate postpartum once lactation has been established.(6) The subdermal contraceptive implant system (Norplant) consists of six flexible capsules, with each capsule containing 36 mg of levonorgestrel.

These implants are inserted surgically in the upper arm and can be left in place as long as five years. (7) Side effects include initial breakthrough bleeding, weight gain, headaches, nausea, breast tenderness, acne and mood disorder.(5)

### **Patients And Methods**

The study has carried out in Clinics from (March 2017) to (September 2017) in Tikrit City. The study included (80) women who take progestational agents their ages (25-30) years old. As well as choosing random group included (20) Sample of healthy women of age (25-30) years old. The samples divided into three groups :-

- \*- Group No.1: - included women who take a progesterone only pills (POPs), they were (40) women.
- \*- Group No.2: - included women who take a *Depot medroxyprogesteron acetate injection (DMPA)*, they were (40) women.
- \*- Group No.3: - included (20) healthy women.

The blood sample was Collected from (100) women who take progestational agents And from healthy women of age (30-35) years old. The blood samples were taken from the vein .10 mL from each patient, the blood was put in disposable test tubes. The tubes are empty of (EDTA) in order make Total proteins & Biochemical tests. After that, The blood was left at room temperature for 20 minutes, The blood was separated

by using a centrifuge at speed of (3000) rpm for 10 minutes. The serum was extracted by using Micropipette, put 1mL of blood serum in the disposable tube in order to make total proteins and other tests .And 1mL of in another test tube to make Biochemical tests.

#### **1-Measurement of Globulin concentration:**

It have been measured Globulin in the serum of the blood by following the steps attached with inspection (Kit) provided by (BioLabo) Company France(8).

#### **2-Measurement of Total S.Protein concentration:**

It have been used Biurete Method to evaluate the proteins of the serum ,the Chromatographic intensity was at 546 Nanometer (9).

#### **3-Measurement of Alkaline phosphatase (ALP) activity concentration:**

It have been measured the activity of ALP enzyme in the serum of the blood by following the steps attached with enzyme inspection (Kit) provided by Biomerienx Company France .(10)

#### **4-Measurement of Bilirubin Concentration in Serum:**

It have been measured Bilirubin in the serum of the blood by following the steps attached with inspection (Kit) provided by (BioLabo) Company France(11)

### **5-Measurement of serum creatinine Concentration in Serum:**

It has been measured creatinine level in the serum of the blood by following the steps attached with inspection (Kit) provided by(BioLabo) Company France (12).

### **6-Measurement of serum uric acid concentration**

It has been used the enzyme method to evaluate the uric acid in the serum of the blood by following the steps attached with inspection (Kit) provided by(BioLabo) Company France (13).

### **7-Measurement of Cholesterol concentration:**

It have been used the enzyme method to evaluate the Cholesterol in the serum of the blood by using the (Kit) to estimate the Cholesterol equipped( Biolabo) Company mad in France with number 02160(13)

### **8-Measurement of Triglycerides concentration:**

It have been used the enzyme method to evaluate the Triglycerides in the serum of the blood by using the (Kit) to estimate the Triglycerides equipped (Biomaghreb) Company mad in France with number 20133(14)

Statistical Analysis: The information of study instances were

collected , analyzed measurably by utilizing program (SPSS10) of windows. counting (Mean±S.D). The huge contrasts at level (0.01)

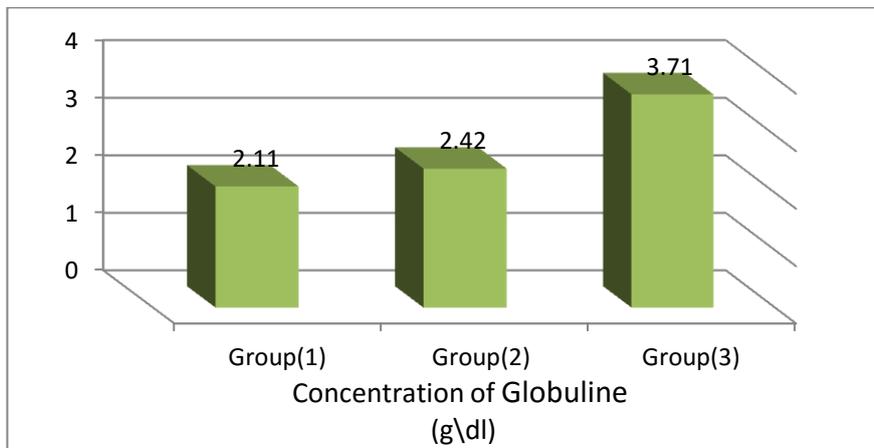
### **Results**

The results in table (1) and figure (1,2)Showed significant decrease in Total Protein and Globuline levels in the women serum used progestational agents in comparison with control group. By back to the results in table (2) and figure (3,4)Showed significant decrease in in activity ALP and TSB Concentration when use to progestational agents in comparison with control group.

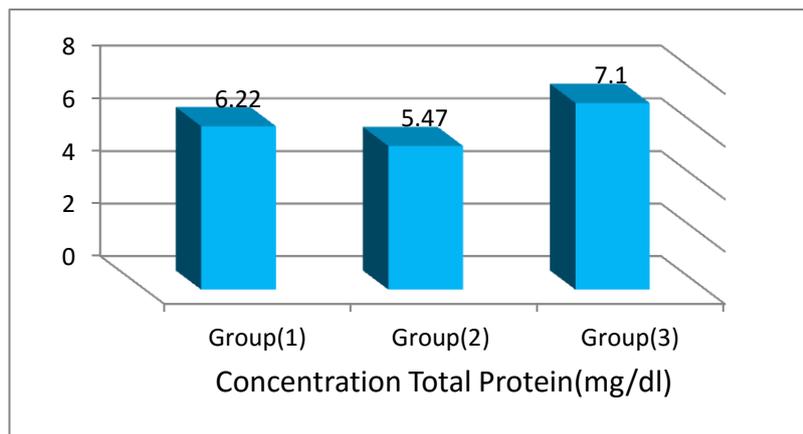
The results in table (3) and figure (5,6,)Showed significant increase in the Creatinine Concentration levels and Showed significant decrease in the Uric acid Concentration levels in the women serum used progestational agents in comparison with the control group, By back to the results in table (4) and figure (7,8) Showed a significant increase in lipids levels (Triglyceride, Cholesterol) in the women serum used progestational agents in comparison with control group.

**Table .(1) Illustrated the Concentration of the (Globulin , Total protein) at in the women Used progestational agents compare with control.**

The Sample	Numbers	Globuline Mean ± SD g\dl	Total protein Mean ± SD g\dl
<b>Group(1) Progesterone only pills</b>	40	2.11 ±1.34	6.22 ±1.42
<b>Group(2) Depot medroxyprogesteron acetate injection(D</b>	40	2.42 ±1.01	5.47 ±1.32
<b>Group(3) control</b>	20	3.71±2.65	7.10±1.7



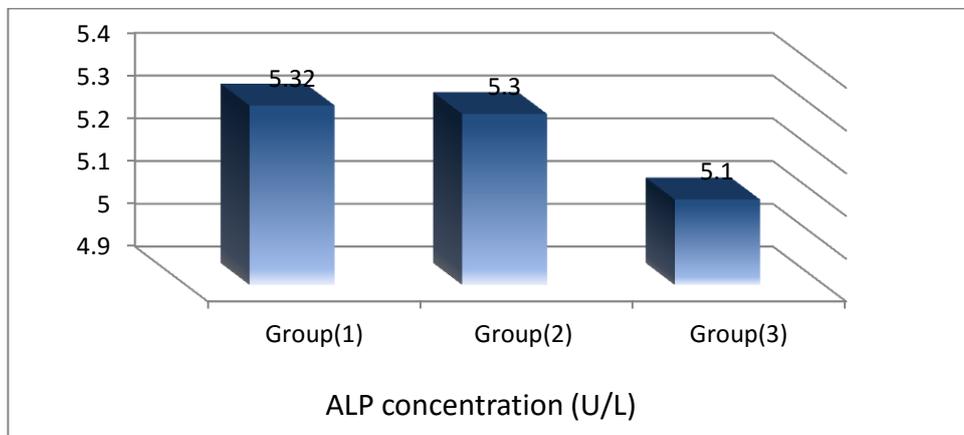
**Figure 1: The Concentration of the Globulin in the women Used progestational agents compare with control**



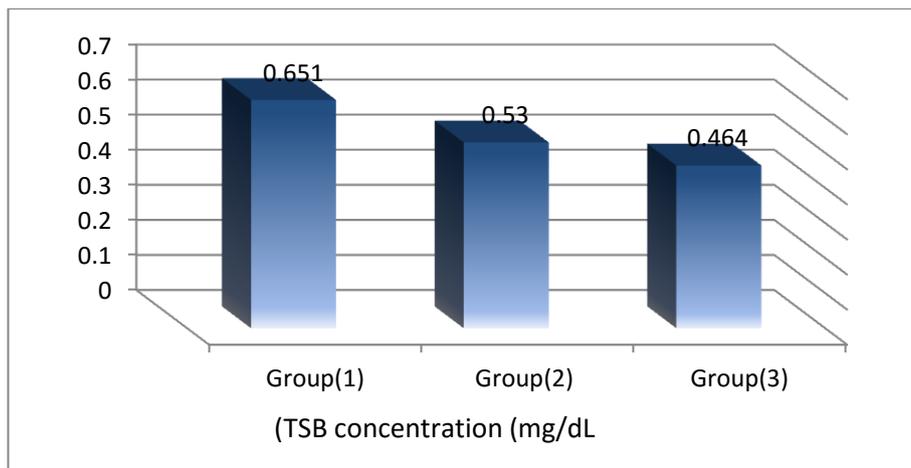
**Figure 2: The Concentration of the Total protein in the women Used progestational agents compare with control**

**Table.(2) Illustrated the Concentration of the( ALP ,TSB) at in the women Used progestational agents compare with control.**

The Sample	Numbers	ALP Mean + S.D U\L	TSB Mean + S.D mg\dl
<b>Group(1) Progesterone only pills</b>	40	5.32 ±2.14	0.651 ±0.79
<b>Group(2) Depot medroxyprogesteron acetate injection(D</b>	40	5.3 ±3.00	0.53 ±0.15
<b>Group(3) control</b>	20	5.1 ±1.24	0.464±0.251



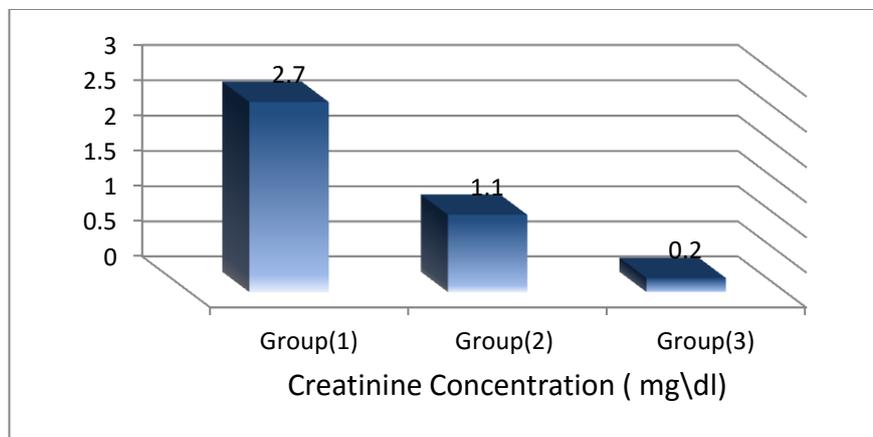
**Figure 3: The Concentration of the ALP in the women Used progestational agents compare with control**



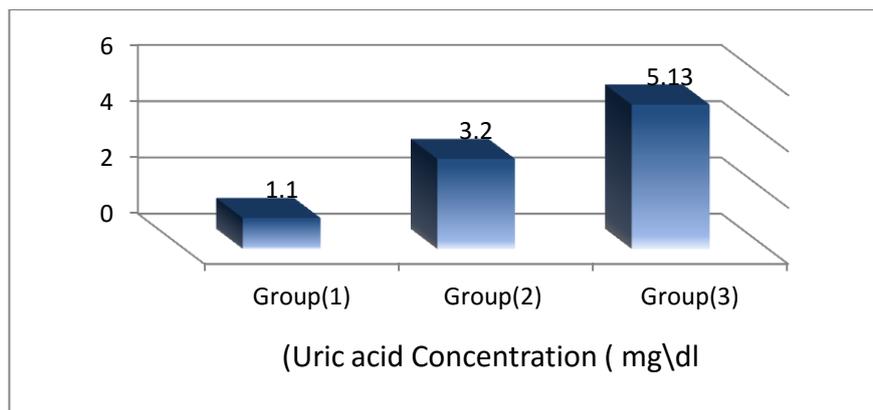
**Figure 4: The Concentration of the TSB in the women Used progestational agents compare with control**

**Table NO.(3) Illustrated the Concentration of the(Creatinine , Uric acid) at in the women Used progestational agents compare with control**

The Sample	Numbers	Creatinine Mean + S.D mg\dl	Uric acid Mean + S.D mg\dl
Group(1) Progesterone only pills	40	2.7 ± 20.4	1.1±2.2
Group(2) Depot medroxyprogesteron acetate injection(D	40	1.1 ±17.1	3.20 ±2.16
Group(3) control	20	0.2 ±3.12	5.13 ± 2.43



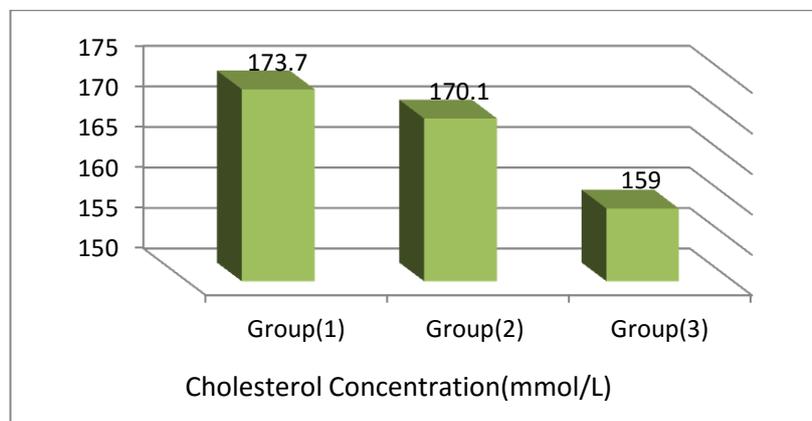
**Figure 5: The Concentration of the Creatinine in the women Used progestational agents compare with control**



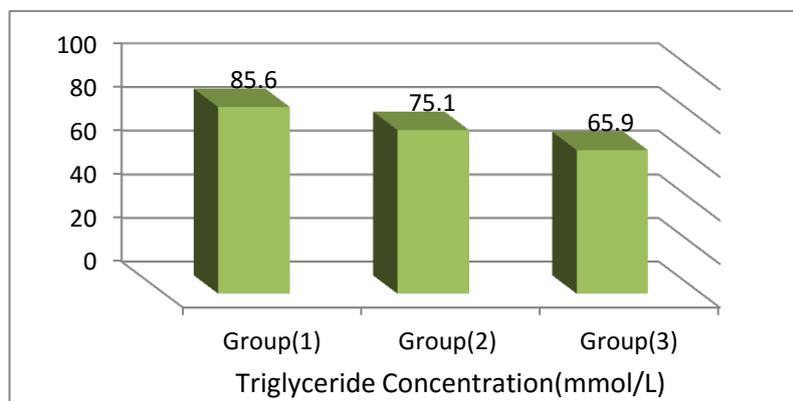
**Figure 6: The Concentration of the Uric acid in the women Used progestational agents compare with control**

**Table NO.(4) Illustrated the Concentration of the(Cholesterol , Triglyceride) at in the women Used progestational agents compare with control**

The Sample	Numbers	Cholesterol (mmol/L) Mean + S.D	Triglestried (mmol/L) Mean + S.D
Group(1) <i>Progesterone only pills</i>	40	173.7±25.3	85.6±7.5
Group(2) <i>Depot medroxyprogesteron acetate injection(D</i>	40	170.1±22.1	75.1±6.6
Group(3) <i>control</i>	20	159.0±27.1	65.9±8.14



**Figure 7: The Concentration of the Cholesterol in the women Used progestational agents compare with control**



**Figure 8: The Concentration of the Triglyceride the women Used progestational agents compare with control**

## Discussion

The results in table (1) and figure (1,2) showed significant decrease in Total Protein and Globuline levels in the women serum used progestational agents in comparison with control group. ,and this agrees with results study of (15) The cause of that due to the Progestin's it has direct effect on proteins Metabolism or physiological failure of the liver. because of the long time using to progestational agents cause a decrease in the Total Protein and reduction of some Amino Acid in plasma and Globuline (16). The Metastatic carcinoma and Autoimmune conditions allergy cause a decrease in the Globuline(17) ,The Depot medroxyprogesteron acetate injection caused reduction in the Globuline levels while using to progestational agentson long term. (18)

The results in table (2) and figure (3,4) showed there's no significant differences in activity ALP and TSB Concentration when use to progestational agents in comparison with control group ,and this agree with results study of (19). Low doses of Combind oral contraceptive doesn't effects on TSB Concentration in the serum but some studies refer reduction in the Bilirobine levels in the serum when using Combind oral contraceptive(COC).and there's decrease in activity ALP, AST ,ALP when using progestational agentson contain high doses of Estrogen(20).

The results in table (3) and figure (5,6) showed significant increase in the Creatinine Concentration levels and showed significant decrease in the Uric acid Concentration levels in the women serum used progestational agents in comparison with the control group, and this agrees with results study of (21,22). The cause of that due to progestational agents which causes a decrease of the Uric acid Concentration, because the Steroid drugs led to decrease in urea genesis in the women (22). Some studies showed that using Combined Oral Contraceptive for a long time cause decrease of the Uric acid in the serum and there is a huge decline in the glomerular filtration rate in the women who take Combined Oral and injectable contraceptive compared with the women who did not take Combined Oral and injectable contraceptive(23,24). while the increase in the Creatinine levels due to the using Steroid drugs(21).

The results in the table (ξ) and figure (7,8) showed a significant increase in lipids levels (Triglestried, Cholesterol) in the women serum used progestational agents in comparison with control group, and this agrees with results study of (25). The Oral Contraceptives caused an increase of the lipids, while Estrogen hormone works us increase Triglestried, Cholesterol (26). Changes in the lipids in women using Oral Contraceptives (OC) because the Estrogen act us to

increase LDL, Triglycerides, while reducing HDL (27,28). found that using progestational agents increase total Cholesterol levels in plasma. But the studies indicated that Triglycerides increase in the women using Desogestrel/Ethinylestradiol (28). The low dosage of Estrogen, Progesterone hormone in the Combined Oral Contraceptive Pills (COCs) reduce side effects of lipids and total protein in the plasma (29).

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