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Study Effects of Contraceptives On Serum Electrolytes and lipid profile in Samarra City

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Abstract:-

This study included (150) samples of women used Contraceptives in (Samaraa General Hospital) (30) blood draw pulled from healthy women as Control sample. The samples were divided into three groups; the first group: -(60) women used combined oral contraceptive pill (COCs) the second group: -(60) women used Progesterone Only Pills(POPs). The third group was the healthy women. The results of the study indicated significant numbers decrease in the Concentration of the Potassium Ion at level (P <0.001) and significant increase in the Concentration of the Sodium Ion at level (P <0.001) when compared to the control group. The results revealed significant decrease in the proteins of the blood (Total protein, Albumin) at level (P <0.001)when compared to the control group. while the results showed a rise in the concentration level of Cholesterol, Triglyceride at level (P <0.001)and significant decrease in the HDL when compared to the control group.

Keywords: Contraceptives, electrolytes.

Introduction:-

Steroid s are a group of hormones,secreted by the adrenal cortex, ovaries, and the placenta. All steroid hormones are derived from cholesterol. They are transported through the bloodstream to the cells of various target organs. (Gupta and Lalchhandama ,2002).].The oral contraceptive pill, also known as birth control pill, is suitable for most healthy women, regardless of age, and it can be used for long-term(Susan and Terri ,2009) .The combined pill contains the hormones estrogen and progestin, a form of progesterone. When a woman uses the combination pill, the eggs in her ovaries do not mature (National,2009) . There are two main types of hormonal contraceptive formulations: combined formulation which contain both an estrogen and a progestin,and progestogen-only formulation which contain only progesterone(Oesterheld , Cozza , and Sandson , 2008).The combined oral contraceptive pills is extremely effective, at least in the absence of intercurrent illness and of treatment with potentially interacting drugs. The estrogen in most combined preparations (second –generation pills) is ethinylestradiol, though a few preparations contain mestranol instead. The progestogen may be norethisterone, or - in (third- generation), which are more potent ,have less androgenic action and cause less change in lipoprotein metabolism but which probably cause a greater risk of thromboembolism than second – generation do (Steinkampf , Carr and Blackwell , 1998).

Side effects of Contraceptives are included:-

Heart and blood vessels, Cancer Weight, Depression, Hypertension, vomiting. (Guida et al, 2004).

Combined oral contraceptive pills were developed to suppress development follicle to prevent ovulation by suppressing the release of gonadotropins (GnRH). The mode of action is as follows:

1-Estrogen inhibits secretion of (FSH) via negative feedback on the anterior pituitary and thus suppresses development of the ovarian follicle.

2-Progestogen inhibits secretion of (LH) and thus prevents ovulation; it also makes the cervical mucus less suitable for the passage of sperm (National, 2009).

Materials patients and methods:-

The study has carried out in Samarra hospital from (February to July 2017). The study included (120) women who take Steroid Drugs', their ages (25-30) years old. As well as choosing random group included (30)Sample of healthy women of age (25-30) years old. The samples divided into three groups :-

*- Group No .1:- included (30) healthy women.

*-Group No.2:- included women how take Progesterone Only Pills(POPs) , they were (60) women .

*- Group No .3:- included women how take Combined Oral contraceptive pill(COCs), they were (60) women.

Method Of Collection The Sample:-

I Collected (150) blood sample from women who take Steroid Drugs' and from healthy women of age (25-30) 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 to per form Biochemical tests. After that , The blood was left in room temperature for 20 minutes , The blood was separated by using centrifuge at speed of (3000) rpm for 10 minutes. The serum was extracted by using Micropipette , 1mL of blood serum was used to test proteins and ions. and 1mL for lipids tests.

Determination of blood Potassium Ion Concentration:- Potassium Ion 0measured in the serum by following the steps supplied with inspection (Kit) provided by(BioLabo) Company France (Tietz, 1995).

Determination of blood Sodium Ion Concentration:- It was measured in the serum by following the steps supplied with inspection (Kit) provided by(BioLabo) Company France (Tietz, 1995).

Cholesterol, Triglycerides and HDL:- Were Measured using The enzyme methods according to the Kits supplied by (Biolabo) Company , France ((Tietz, 1999, Fossati ,1982).

Measurement of Total S.Protein concentration:-

Biurete Method was used to used evaluate the proteins of the serum ,the Chromatographic intensity was at 546 Nanometer (Kingsley,1942).

Measurement of Albumin concentration:-

Albumin in the serum was determined by methods supplied with the (Kit) provided by(BioLabo) Company France(- Jennifer and Finbarr , 1982).

Statistical Analysis:-

The data was collected and analysis statistically by using program (SPSS10) of windows. including (Mean ±S.D). The significant differences at level (P<0.001). was considered Statistically significant.

Results and Discussion:-

Table NO.(1) The Concentration of the Potassium and Sodium Ions in the women Used Contraceptives compare with control

The Groups	numbers	Concentration of Potassium Ion(mmol/L) Mean + S.D	Concentration of Sodium Ion(mmol/L) Mean + S.D
Control group	30	3.680±0.110	143.12± 1.31
GGroup(POPs)	60	2.43±0.120*	152.80±1.64**
Group(COCs)	60	1.23±0.10*	160.77±5.21**

**significant (increase at level) of P<0.01 compared with control

*significant(decrease at level)of P<0.01 compared with control

normal range of potassium in the blood(3.5-5.0) milli Equivalents per liter (mEq/L).

normal range of Sodium in the blood (135 to 145mEq/L)

The results in table (1) showed significant increase in the Sodium Ion levels and significant decrease in the potassium Ion levels in the serum of the women used Oral Contraceptive in comparison with control group ,and this agree with the results of (Stachenfeld et al 2001).The cause of that due to the Combined Oral Contraceptive Pills which causes decrease of the Potassium Ion, because the Estrogen hormone act as decrease K Ion and caused hypertension, and work on Fluid retention , the kidney start to keep high amount of Na and high amount of water(Stachenfeld et al 1999). Some studies showed that using Combined Oral Contraceptive Pills increase Na in the body which to keep high amount of Na levels in plasma and indicated that Fluid retention (Kang et al ,2001)Potassium act on regulated Sodium levels in the

cells ,the high amount of Na work to decrease K Ion and caused hypertension(Sims et al,2007).

Table NO.(3) Illustrated the Levels of the lipids at in the women Used Contraceptives compare with control

The Groups	numbers	Cholesterol (mmol/L) Mean + S.D	Triglestried (mmol/L) Mean + S.D	HDL (mmol/L) Mean + S.D
Control group	30	159.0±27.1	65.9±8.14	57.8±3.11
Group(POPs)	60	170.1±22.1**	75.1±6.6**	50.2±5.4*
Group(COCs)	60	173.7±25.3**	85.6±7.5**	55.4±6.15*

**significant (increase at level) of P<0.01 compared with control
*significant (decrease at level) of P<0.01 compared with control

The results in table (3) showed significant increase in lipids levels (Triglestried, Cholesterol) and Showed significant decrease (HDL) in the women serum used Oral Contraceptive in comparison with control group ,and this agree with results study of (Olatunji et al,2008) The Oral Contraceptives caused increase of the lipids ,the Progesterone hormone act us increase LDL and decrease HDL while Estrogen hormone work us increase Triglestried, Cholesterol (Loncar , 2007). Changes in the lipids in a women using Oral Contraceptives (OC) because the Estrogen act us to increase LDL, Triglestried, while reduce HDL (-Goldstein, and Brown, 1990, Foulon et al,2001). found that using Combined Oral Contraceptive Pills (COCs) increase total Cholesterol levels in plasma .But the studies indicated that Triglestried increase in the women using Desogestrel/Ethinilestradiol(Foulon et al,2001). 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 (Kohet al,2004) Reason of decrease(HDL) in the women serum due to the increase of estradiol free level and biological Active along menstrual cycle (Olatunji et al,2008).

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