Pak. J. Biotechnol. Vol 15 (3) 699-702 (2018) ISSN Print: 1812-1837
www.pjbt.org ISSN Online: 2312-7791

THE SIDE EFFECT OF NORISTERAT INJECTION IN SOME BIOCHEMISTRY PARAMETERS IN AL-DIWANIYA CITY

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Article received 2.8.2018, Revised 3.9.2018, Accepted 9.9.2018

ABSTRACT

The present study aims to investigate the side effect of the injection by Noristerat on some biochemistry parameter in women in Al-Diwaniya city by evaluate oxidative stress and antioxidant level and change in lipid profile in women that using contraceptive by injection Noristerat.

The results show that there is a significant increase in cholesterol, LDL and T.G, and a significant decrease in HDL in women who use contraception when compared with the group of women who do not use contraception.

Also, the result points that there is increase significant in TOs and decrease significant in SOD, Cat, C.K and GSH in women who use contraception (Noristerat) when compared with the group of women without treatment contraception**.**

Key words: Noristerat , oxidative stress , lipid profile

INTRODUCTION

Noristerat is drug used to prevent pregnancy, 200mg solution for intramuscular injection work by preventing ovulation (Gara *et al*., 1991). Ingredients like benzyl benzoate, increase the risk of jaundice in newborn baby. It is usually given during the first 1-5days of period and injected slowly into a muscle is injectable type of contraceptive. It is intended as a short term method(8 weeks only) of contraceptive (Sharon *et al*., 2012], contain a type of female sex hormone called progesterone, this hormone stops pregnant by three ways (Berenson *et al.,* 2009) the first preventing an egg being rele-ased from ovaries, second making the fluid (muc-us) in your cervix thicker, which makes it difficult for sperm to enter the womb and preventing the lining of womb thinking enough for an egg to grow in it (Berenson *et al.,* 2009]. This drug will not protect against sexually transmitted diseases and it is increase the risk of blood clot (Lopez *et al.,* 2014). Before taking this drug must check blood pressure and breast examination and nipple every month and avoided overweight or some heart diseases or migraine or had recently baby or blurred vision or any problems in hearing or speech, smell, taste, touch, swelling in legs, or shortness of breath, or any weak-ness, any liver diseases, diabetes, abnormal vaginal bleeding, have ever had an ectopic pregnancy and ovarian cysts (Saksit *et al.,* 2012].

This drug has not affect on to reduce the amount of milk produced which is an advantage if you wish to breast feed (Enyindan *et al.,* 2016). The Side effects of Noristerat show headache, change in vision, swelling of the legs or face or lips or all over the body, stabbing pain when the patient breathe numbness on the side or part of body, pain tightness of the chest, allergic reaction to this drug, dizziness, depressive moods, tender breasts, irregular bleeding and nausea (Ahmed *et al.,* 2015].

Many studies have noted a greater incidence of atherosclerosis and cardiovascular diseases in women using contraceptives and when Menopause. Proges-terone may exercise Negative effect on fat metabolism progesterone only administered or combined with estr-ogen may Reducing plasma concentration of trigly-ceride and HDL cholesterol (Richmon *et al*., 1973).

In women in the pre and postmenopausal period, stimulate the production of nitric oxide. And incr ease oxidative stress (Total oxidative stress) by decrease in antioxidant enzyme like SOD, CAT and CK [Richmon et al., 1973].

Therefore, the present study was aimed to investigate the effect of Noristerat injection on the level of some serum biochemical parameters (SOD, Cat, GSH, C.K, TOs, CHO, LDL, HDL, T. G, T. protein, ALbumin and Uric acid) in women that using noristerat injection

MATERIALS AND METHODS

A cross sectional study was conducted on the following groups during 1/6 /2017 - 13/10 /2017. The samples were obtained from in the General Afak Hospital center, samples divided in to 25 women with treatment with noristats that age 37±0.97 and weight 85.4 ± 0.96. And 25 women without treatment noristats age 29.6 ±1.7 and weight 66.3 ± 0.61. The laboratory work was carried out in the laboratory of research in the General Afak Hospital. Collection of samples, Samples could clot then centrifuged at 3000 Xg for 10 minutes. Biochemistry parameter tests were measured lipid profile CHO, LDL, HDL, T.G (Goldman *et al.,* 2008, Fossatin *et al.,* 1982, Bur-tis *et al.,* 1999, Misra 1974), SOD, Cat, C.k, TOs (Abedi 1974, Bais,1980, Erel 2005, Fossatin *et al.,* 1980) and Uric acid (Lenneruaset *et al.,* 1997).

Bio statistical Analysis: The data were analyzed using indepened t-samplle t-test in SPSS version 24.

RESULTS AND DISCUSSION

Lipid profile: The statistical evaluation of Lipid profile show increased in both cholesterol, LDL and T.G and decrease in HDL in group women with injection Noristerat when compared with women group without injection noristerat $P \leq 0.05$ show Table 1. The results of this learn indicated that there were colossal decreases within the degree of high density lipoprotein cholesterol (HDL-C) and increase low density lipoprotein ldl cholesterol (LDL-C). The intent of that's might be because of some medicinal drugs (noristrate) which causes inhibitor of (HMG-CoA) reductase enzyme and leads to that's state (Herrera *et al.,* 1988). Pharmacodynamics and pharmacokinetics of the HMG-CoA reductase inhibitors (Kruss 1982) or to cut back in lipoprotein lipase undertaking in CVA sufferers which results in diminish catabolism of (TG) into fatty acids and glycerol (Bitzur *et al.,* 2009] function of lipoprotein lipase pastime on lipoprotein metabolism and the fate of circulating triglycerides in pregnancy (Reaven *et al.,* 1996) or to action of some drugs which causes increase the hepatic receptor (ApoB-a hundred) which perfo-rms an foremost role in increase transport of LDL-C to hepatic tissue or may be because of insulin resistance in CVA sufferers which explanations abnormality in metabolism of lipids (Mendes 1983). Hypertension and associated metabolic abnormalities-the role of insulin resistance and the sympathoadrenal method (Nault *et al.,* 2017] Progesterone stimulates lipogenesis in adipose tissue with none develop in meals intake or serum insulin concentrations suggesting that progesterone will have a direct anabolic role in adipose tissue (Taryn *et al.,* 2008) Progesterone decreases the inhibiting the activity of both ATGL (Adipose triglyceride lipase (ATGL) (G0s2), genes in white adipose tissue (WAT)as skills targets for progesterone action in the course of the path addition to cut back adipose triglyceride lipase (Knopp *et al.,* 1994). The outcomes of this gain knowledge of indicate that there is large broaden within the degree of (TG) and the extent of very low density lipoprotein cholesterol (VLDL-C) the cause of that's could also be as a result of cut back in lipo-protein lipase endeavor excessive density lipoprotein ldl cholesterol (HDL-C) and low density lipoprotein cholesterol (LDL-C), The cause of that's maybe due to some medicines or stains (simvastatin, pravastatin) which motives inhibitor of (HMG-CoA) reductase enzyme and leads to minimize the extent of total cholesterol (Osman *et al.,* 2017) or to scale down in lipoprotein lipase undertaking which ends up in cut back catabolism of (TG) into fatty acids and glycerol medications which explanations increase the hepatic receptor (ApoB-a hundred)which plays an major role in broaden transport of LDL-C to hepatic tissue. Noristrate induced hepatic lipase activity, growing the degradation of HDL, whereas, tend to reduce the develop in serum HDL and the lessen in serum LDL. These effects of drug contraception upon lipid profile rely upon their biochemical structures whereas with pure noristrate effect do not alter the lipid metabolism and scale back HDL2, selectively in premenopausal females and this shrink associated with increase hepatic lipase endeavor. In women taken contraceptives containing overall noristrate improved plasma triglycerides and diminished plasma HDL above all HDL2. Estrogen is able of selling in vivo protecting actions, and discount of hepatic triglyceride lipase, which degrades HDL (excessive Density Lipoprotein), stimulating, accordingly, the construction of HDL ldl cholesterol and reducing the construction of LDL (Low Density Lipoprotein) ldl cholesterol, Progestins adversely affect carbohydrate and lipid metabolism as they cut back glucose tolerance by means of improved insulin resistance (Osman *et al.,* 2017).

Antioxidant and oxidant: In this study appear decrease in antioxidant enzyme SOD, CAT and C.K and decrease antioxidant non-enzyme GSH and increase oxidative stress TOs and Uric acid in group Women with injection by noristerat when compared with group Women without injection by noristerat show Table 2.

The decrements in antioxidant enzymes (SOD, Cat and C.K) due to increase oxidative stress the oxidative stress results of free radical (Chen *et al.,* 2012, Pincemail *et al.,* 2007). Free radicals are interaction with activity active sites of enzyme has effect on function and structure of enzyme there-fore lower in activate of enzyme or due to the women who take contraception leads to menopause the menopause linked with increase oxidative stress and decrease antioxidant (Fijer *et al.,* 2016).

When occur menopause being release ROS and RNS therefor increase oxidative stress (Pincemail *et al.,* 2007. The GSH plays role in antioxidant detoxifies (Jendry et al., 1992). The who take contraception (noristerat) that formation xenobiotic and toxic compound (Fallah *et al.,* 2011).

the xenobiotic and toxic compound reaction with GSH and converted to GS-SG or the decrease in GSH due to stop the menstrual cyclic in women with treatment by noristerat this leads to increase oxidative stress through product ROS and RNS that react with thiol group of GSH reduce and converted to GS-SG oxidant (Groote *et al.,* 2009). And increase TOs me be related to take contraception or to menopause this leads to increase TOS (Jendry et al., 1992). Uric acid is marker to oxidetive stress. in increase oxidative stress action on activeted xanthine oxidase that is function on purine base metabolism and converted to interment then to uric acid (Groote *et al.,* 2009).

the correlation between period of Noristerat injection and another parameter show in Table 3. In this study appear signification correlation negative with HDL, SOD, CAT, C.K and GSH and positive correlation with Cholesterol, T.G, LDL, TOs and Uric acid may be related cause to increase inject-ion lead to cumulative toxic compounds in body.

Table 1: The effect of Noristerat injection on lipid profile in women

Parameters	Women without injection by Noristerat (mean ±S.E)	Women with injection by Noristerat (mean ± S.E)	P-value ≤ 0.05
Cholestrol(mg/dl)	**151.7 ± 3.4**	**202.4 ± 4.6**	**S.g**
LDL (mg/dl)	**86.7± 1.9**	**191.9 ±2.59**	**S.g**
HDL (mg/dl)	**41 ±1.3**	**21.2 ± 1.48**	**S.g**
T.G (mg/dl)	**88 ±3.2**	**236 ±3.25**	**S,g**

Table 2: the effect of Noristerat injection on oxidant and antioxidant

Parameters	Women without injection by Noristerat (mean ± S.E)	Women with injection by Noristerat (mean ± S.E)	P-value ≤ 0.05
SOD (U/l)	**1.85 ±0.39**	**1.25 ± 0.08**	**S.g**
CAT (U/l)	**1.9 ± 0.055**	**1.28 ± 0.07**	**S.g**
C.K (U/l)	**213 ± 4.3**	**64.9 ± 0.9**	**S.g**
GSH (µmol/L)	**12 ± 0.319**	**6.9 ± 0.25**	**S,g**
TOs (µmol/L)	**10.72 ± 0.33**	**18.9 ± 0.57**	**S.g**
Uric acid (mg/dl)	**5.2 8 ± 0.429**	**11.8 ± 0.18**	**S.g**

Table 3: the correlation between period of Noristerat injection and other parameter

Period of treatment	Parameter	Pearson correlation
	Cholesterol	0.979**
	LDL	0.901**
	HDL	-0.908**
	T.G	0.59
	SOD	-.984**
	CAT	-0.913**
	C.K	-0.896**
	GSH	-0.94**
	TOs	0.942**
	Uric acid	0.917**

**Correlation is significant at the 0.01 level, *Correlation is significant at the 0.05 level

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