Differences of Cholesterol Level in DMPA (Depo Medroxy Progesteron Acetat) and Cyclofem Injection Acceptors

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Background : *The latest data on the coverage of active FP participants Contraceptive Prevalence Rate (CPR) in Indonesia reaches 61.4%, and this figure is quite a high achievement rate among ASEAN countries. However, the methods used are mostly short-term methods such as pills and injections. According to data from Indonesian health resources, family planning acceptors who use injections are 30.8%, pills 13.2%, IUDs 4.8%, implants 2.8%, tubectomy 3.1%, and condoms 1.3%. One of the methods of injection KB that is widely used is Depo Medroxyprogesterone Acetate (DMPA) and Cyclofem. Unlike the contraceptive Cyclofem which does not interfere with the menstrual cycle because of the presence of estrogen in cyclofem, DMPA injectable contraception has side effects, namely causing the hormone estrogen to be imbalanced because DMPA only contains progesterone, causing a decrease in HDL (High Density Lipoprotein) and an increase in LDL (Low Density Lipoprotein).) this will result in an increase in total cholesterol.* ***Method :*** *In this study, the research design used was a comparative analysis, namely comparing cholesterol levels in DMPA and Cyclofem acceptors. This study used a cross sectional study. The population was DMPA and Cyclofem injection family planning acceptors, while the sampling technique used purposive sampling technique.* ***Results :*** *Based on the results of data analysis with the Paired T test, it was found that DMPA acceptors had higher cholesterol levels (mean = -1.822; SD = 45.34; p <0.005) than cyclofem acceptors (mean = 1.722; SD = 35.51; P <0.005).* ***Conclusion :*** *Contraceptive injections cause changes in fat metabolism through changes in HDL and LDL levels. HDL is antiatherogenic, on the other hand, high levels of LDL and triglycerides cause cardiovascular disease in the periphery and coronary arteries which cause cardiovascular disease. Long-term use of hormonal contraceptives causes an increase in LDL, whereas HDL varies*

Keywords:
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I. Introduction

Indonesia is a country with a high population density and growth rate. Therefore, a family planning program is needed, which is one of the programs in an effort to plan the birth of a child, the ideal distance and age for childbirth, regulate pregnancy, and assistance in accordance with reproductive rights to create a quality family. Pregnancy regulation in the family planning program is carried out using contraceptive methods / means (Prawerti, 2019).

The latest data on the coverage of active FP participants Contraceptive Prevalence Rate (CPR) in Indonesia reaches 61.4%, and this figure is quite a high achievement rate among ASEAN countries. However, the methods used are mostly short-term methods such as pills and injections. According to data from Indonesian health resources, family planning acceptors who use injections are 30.8%, pills 13.2%, IUDs 4.8%, implants 2.8%, tubectomy 3.1%, and condoms 1.3%. This is related to the high dropout rate in the short-term method so that it needs continuous monitoring. In addition, the management of family planning programs needs to focus on the category of fertile age couples (PUS) with 4 too (too young, old, frequent and many) (MOH, 2014)

From the data above, the use of injection family planning is the prima donna for the Indonesian people because the acceptors reached 30.8%. This shows that people are able to accept all the side effects that arise from this injection contraceptive. On the other hand, injection contraception causes changes in fat metabolism through changes in HDL and LDL levels. HDL is antiatherogenic, on the other hand, high levels of LDL and triglycerides cause cardiovascular disease in the periphery and

coronary arteries which cause cardiovascular disease. Long-term use of hormonal contraceptives causes an increase in LDL, whereas HDL varies (Djaswadi, 2008)

One of the methods of contraseptif injection that is widely used is Depo Medroxyprogesterone Acetate (DMPA) and Cyclofem. The side effects include changes in menstrual patterns. The 1-month injection does not interfere with the user's menstrual cycle, while the 3-month injection interferes with the menstrual cycle in the user, namely experiencing amenorrhea and spotting bleeding. This is because a 1-month injection of the estrogen hormone injected will stimulate the discharge of menstruation every month, while the 3-month injection contains progesterone, progesterone is responsible for endometrial changes in the menstrual cycle in the cervix and vagina. So that at the time of injection of DMPA, in the luteal phase the levels of the hormone progesterone remain high and the hormone estrogen decreases so that there is no release of the uterine lining (endometrium) which results in frequent disturbances in the menstrual pattern of amenorrhea (not menstruating) (Saifuddin, 2006).

DMPA Injectable Contraceptives have various side effects, including depression, vaginal discharge, acne, hair loss, weight gain, as well as long-term use changes in serum lipids, headaches, and can cause vaginal dryness and reduce libido (Sulistiawati, 2014). According to Santa (2014) DMPA injectable contraception has a side effect of causing an imbalance of the estrogen hormone, which results in a decrease in HDL (High Density Lipoprotein) and an increase in LDL (Low Density Lipoprotein) which will result in an increase in total cholesterol. Acceptors often complain about the side effects of injection contraceptives, one of which is joint pain and headache. This is possibly due to an increase in HDL and LDL, which are components of blood cholesterol. Based on the above background, the authors are interested in examining the differences in blood cholesterol levels in dmpa injection acceptors (depo medroxy progesterone acetate) and cyclofem.

II. Method

In this study, the research design used was a comparative analysis, namely comparing cholesterol levels in DMPA and Cyclofem acceptors. This study used a cross sectional study where data collection was carried out at one time. This research was conducted at PMB Mei Kurniawata, Amd.Keb, Surabaya for about 3 months. The population was the DMPA and Cyclofem injection family planning acceptors, while the sampling technique used purposive sampling technique. The total samples were 40 samples, namely 20 DMPA acceptors, and 20 respondents were Cyclofem acceptors. Data analysis using Paired T Test

III. Results and Discussion

The subjects in this study were 20 DMPA acceptor respondents and 20 Cyclofem acceptor respondents. The following are the results of the data obtained from research respondents:

Table 1. Subject characteristic

Subject characteristic	Frequency (n)		Percentage (%)	
	DMPA	Cyclofem	DMPA	Cyclofem
Age Group				
20 – 25 years old	4	4	20	20
26 - 30 years old	1	2	5	10
31 – 35 years old	2	8	10	40
36- 40 years old	4	2	20	10
> 40 years old	9	4	45	20
Total	20	20	100	100
Paritas				
Nulipara	0	1	0	5
primipara	2	8	10	40
multipara	16	11	80	55
Grande multipara	2	0	10	0
total	20	20	100	100

Length of use				
1-5 years	10	16	50	80
6-10 years	6	2	30	10
> 10 years	4	2	20	10
total	20	20	100	100
Cholesterol level				
≤ 200	14	16	70	80
> 200	6	4	30	20
Total	20	20	100	100

Based on the result of data analysis with the Paired T test, it was found that DMPA acceptors had higher cholesterol levels (mean = -1.822; SD = 45.34; p <0.005) than cyclofem acceptors (mean = -1.722; SD = 35.51; P <0.005) .

Depo Medroxyprogesterone Acetate (DMPA) is a liquid suspension containing micro crystals of progesterone derivatives whose mechanism of action is to inhibit the secretion of follicle-triggering hormones FSH and LH and LH surge. DMPA is 6 alfamedroxyprogesterone which is used for parenteral contraceptive purposes, has a strong and very effective progesterone effect and contains 150 mg of Depo Medroxyprogesterone Acetate given every 12 weeks intramuscularly, namely in the buttocks area (Affandi, Biran et al., 2014, Baziad, A , 2008).

Based on the results of data analysis with the Paired T test, it was found that DMPA acceptors had higher cholesterol levels (mean = -1.822; SD = 45.34; p <0.005) than cyclofem acceptors (mean = -1.722; SD = 35.51; P <0.005) . The average total cholesterol level in DMPA acceptors was higher than the combination pill acceptors. This can occur because of several factors that influence including hormones, weight gain, food intake and diet. The hormones contained in the combination pill can increase sodium and fluids while the hormones in DMPA can increase appetite and fat layer resulting in weight gain. This increase in body weight will affect HMG-CoA reductase which stimulates an increase in the formation of total cholesterol (Adam J, 2006; Bahri C, Piliang S, 2006).

The results of this study are in line with the research conducted by Sitinjak (2019) that the mean total cholesterol level between DMPA acceptors was higher than the combined pill contraceptive acceptors (185.53 ± 23.51 mg / dl: 181.22 ± 29.10 mg / dl). Where the content and workings of this combination pill is almost similar to cyclofem injection, which is that both contain estrogen. Per mL of cyclofem contains Medroxyprogesterone acetate 50 mg, estradiol cypionate 10 mg.

The more often someone gets DMPA injections, the accumulation and influence of hormones on fat metabolism will also increase (Tobing in W, ngesti, Tutik Herawati and Lenni Saragih, 2015). This is also in line with the research of Didien Ika Setyarini (2013) regarding the relationship between the length of time using DMPA, the longer the percentage of acceptors who have fat levels in 30-35% intervals and> 35% in the category close to high and high. This is caused by the hormone progesterone which causes estrogen levels to decrease. In contrast to cyclofem, where the content in it besides containing the hormone progesterone also contains estrogen.

IV. Conclusion

The mean cholesterol level in DMPA acceptors was higher than that of cyclofem acceptors

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