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Weight gain of Progestin and Combined Contraceptive Users

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ABSTRACT

Background: Family planning was one of the efforts for achieving prosperity by providing advice on marriage, infertility treatment, and birth spacing. The Family Planning Method of injection had become part of National Family Planning Movement and its interest grew more and more. The purpose of this research was in order to know the influence between the use of Family Planning of progestin injection and combination injection against weight gain. **Methods:** This type of research was analytical research with case control design. The populations of this research were Family Planning acceptor who had progestin injection and combination injection at Public Health Center of Poned Panekan, Magetan, Indonesia. The samples were 210 people by cluster random sampling technique. Data analysis utilized Paired T-Test and Linear Regression with probability 0.05. **Results:** Paired T-Test analysis result was obtained $p = 0.000$ ($p < 0.05$), which meant that there was a significant difference between body weight before and after. The result of linear regression analysis showed that there was a significant influence between age and body weight before, which had $p = 0.000$ ($p < 0.05$), body weight after in Family Planning, which had $p = 0.000$ ($p < 0.05$), and no long-term effect of Family Planning to body weight after, which had $p = 0.58$ ($p > 0.05$). **Conclusion:** there was a significant influence between age and Family Planning of injection against the acceptor's weight gain. Moreover, the progestin injection acceptor's weight gain was greater rather than combination injection acceptor.

Keywords: Weight gain, Progestin contraceptive, Combine contraceptive

INTRODUCTION

Background

Family planning (FP) was one of the efforts to achieve welfare by providing advice on marriage, infertility treatment and thinning birth⁽¹⁾. Injecting methods of FP had become part of the national FP movement and its demand increased. The high interest of FP injection was caused by its safety, simplicity, effectivity, and it didn't cause disruption and could be used in postpartum⁽²⁾. There were a lot of reproductive health problems that needed to be studied, not only about the reproductive organs, but also several other aspects and one of them was contraception. Currently, there were available many contraceptive methods such as: IUD, syringe, pill, implant, *kontap* (steady contraception), condom⁽³⁾. One of the most popular contraception in Indonesia was inject contraception. Inject contraceptions which were used were Noretisteron Enantat (NETEN), Depo Medroxi Progesterone Acetate (DMPA) and Cyclofem⁽³⁾.

According to National Population and Family Planning Unit data in 2016, most of fertile couples (PUS (*Pasangan Usia Subur*)) as FP participants in Indonesia still relied on inject contraception (59.57%) and pill contraception (20.71%). While the highest percentage of Long Term Contraception Method was IUD (7.30%) and implant (6.21%). The male participants only reached 1.27% (MOP (*Medis Operatif Pria*/ Medical Operative Male)) 0.27% and Condom 1%). Injection was the most preferred contraception method in all age groups. The data from health profile of Magetan in 2016 showed that there were 110.318 fertile couples in Magetan. The number of new FP participants were 9.171 people (8.3%) and active FP participants were 79.964 people (72.5%). From the active participants, 36.8% acceptors selected long-term method (IUD, MOW / MOP and Implant), while 63.2% selected short-term method (pill, injection and condom). Moreover, most active FP acceptor selected injection (54.9%). The similar preference was occurred to new FP participants which 59.5% of them selected injection. Data at Panekan Public Health Center in 2016 reported that active FP participants were 720 people and most of them selected injection (428 people, 59.4%), then, IUD (19.6%), MOW/ *Medis Operatif Wanita* / Medical Operative Female (1%), implant (14.3%), condom (1.3%), and pill (6.3%)⁽⁴⁾.

Inject contraception had either advantages or disadvantages. The disadvantages of inject contraception were disruption of menstrual patterns such as amenorrhea, menorrhagia and spotting, late fertility after discontinuation of use, and weight gain⁵⁾. The most common side effect of inject contraception was weight gain.

The cause of weight gain was unclear. The experts made hypotheses that DMPA stimulated the appetite-controlling center in the hypothalamus that caused food acceptor more than usual. In order to obtain real description of weight gain that was experienced by inject contraception acceptors, it was necessary to conduct a research in order to determine the extent influence of inject contraception and weight gain⁽³⁾.

Based on the phenomenon, the researchers were motivated to conduct research with the title of weight gain against Family Planning Acceptor of Progestin Injection and Combination Injection at Public Health Center of Poned Ponakan, Magetan, Indonesia. Is there an effect of progestin injection and combination injection on weight gain

Purpose:

This research aimed at determining the effect of progestin and combination injection on weight gain at Poned Panekan Public Health Center, Magetan-Indonesia.

METHODS

This was an analytical research with case control design to find out weight gain in case group (being given progestin injections) and in control group (being given combination injection)⁽⁶⁾. The research was conducted at Poned Panekan Public Health Center of Magetan from February to November 2017. The populations were 428 Mothers of FP participants who were given progestin and combination injection. The inclusion criteria were FP acceptor who were injecting with progestin and combination injection, acceptors who used progestin injection at least 1 year (4 times injections) with the last year regularly. Therefore, the samples were 210 people. The samples of the research were divided into 2 groups. In group of progestin injection was as much as 161 people, meanwhile, in combination injection was as much as 49 people. Sampling technique of this research utilized cluster sampling⁽⁷⁾.

Independent variable was progestin and combination injections. In this study, the dependent variable was the weight of FP acceptor. The data were collected by these following stages: The researcher took care of ethical clearance at the Polytechnic Ethics Commission of Surabaya Ministry of Health to ensure that there would be no violation of ethics in this research. The researcher submitted the application for permission to the Head of National Unity and Politics of Magetan and followed up to the research place (Poned Panekan Public Health Center of Magetan); The researcher met Family Planning participants of progestin injection and combination injection at Poned Panekan Public Health Center who had been selected as samples, and the researcher provided an explanation of the purpose of data collection to the mothers (samples) who were willing to be respondents and signed the informed consent⁽⁶⁾.

At this stage, there were 3 main steps that would be implemented. Those were: data editing, data tabulation, and data analysis. After the data were collected, the data were presented in form of general table, including the mean and standard deviation in each group, then, it was tested statistically by using computer program. The difference of weight gain on FP acceptor was tested by using Paired T-Test and the effect of contraception against weight gain was used Linear Regression. Criteria for statistical test based on probability with significance of 0.05 was that H_0 was accepted if P value was >0.05 , which meant that there was no significant influence between progestin injection and combination injection against weight gain. H_0 was rejected if P value was <0.05 , which meant that there was a significant influence between progestin injection and combination injection against weight gain⁽⁸⁾.

RESULTS

The results of data analysis both descriptive and hypothesis testing are shown in Table 1 to Table 6.

Table 1. Distribution of contraception types

No	Contraception types	Frequency	Percentage
1	Progestin	161	76.7
2	Combination	49	23.3
	Total	210	100

Table 2. Distribution of respondent's age

No	Age (Years)	Frequency	Percentage
1	16-20	17	8.1
2	21-25	50	23.8
3	26-30	46	21.9
4	31-35	53	25.2
5	36-40	44	21.0
	Total	210	100

Table 3. Distribution of Family planning duration

No	FP Duration (Years)	Frequency	Percentage
1	1-5	156	74.3
2	6-10	44	21.0
3	11-15	6	2.9
4	16-20	4	1.9
		210	100

Table 4. Mean and standard deviation of body weight before and after using progestin & combination contraceptive

Contraception Types	N	Mean	SD	Standard error Mean
Body Weight Before:				
- Progestin	161	48.71	7.602	0.599
-Combination	49	48.18	7.296	1.042
Body Weight After:				
- Progestin	161	52.02	8.043	0.634
-Combination	49	50.92	7.689	1.098

Table 5. Result of paired sample t-test (difference of body weight before and after using progestin & combination contraceptive

	T	df	Sig.	Note
Pair Body weight before-after	-19.016	209	0.000	Significant

Table 6. Results of linear regression analysis

No	Influences between variables	Beta	t	Sig	Note
1	Age against Body weight (After)	0.096	4.045	0.000	Significant
2	FP Duration against Body weight (After)	-0.045	-1.904	0.058	Not Significant
3	Body weight before against body weight after	0.940	44.420	0.000	Significant

DISCUSSION

Most acceptor were 31-35 years old and the others were 16-20 years old. The other studies suggested that the potential of a greater depression tended to increase by the increase of age. Older people experienced the decrease of neuropsychological control, including attention loss, memory processing, information processing speed and overall cognitive function, thus, it was correlated with motivation changes, such as lack of interest in joining FP acceptor. However, age might affect the weight of FP acceptor. The older the acceptor, the greater the possibility of weight gain.

Some acceptor reported that depression as one of the side effects of DMPA. In another conducted study stated that the use of long-term contraception of three months (DMPA) until more than 2 years actually could cause psychological disorder (96.3% of the samples). Progestin that was used regularly or in long-term could interfere the formation of vitamin B6 (pyridoxin) in the body. Vitamin B6 was important for brain because it was necessary to convert tryptophan into serotonin. If it was used for long term, it would decrease serotonin that triggered depression⁽⁹⁾.

The difference of mean between body weight before and after having progestin injection was 3.31 kilograms. The difference of body weight average between before and after contraceptive injections was 2.74 kilograms. It could be concluded that the difference in body weight mean increased in progestin injection was greater than in combination injection. Paired T Test analysis was obtained $p = 0.000$ (<0.05), which meant that there was body weight difference between before and after having FP injection.

Weight gain on progestin injection acceptor was greater rather than on combination injection. This was because the progestin content was higher in progestin injections rather than combination injection, and it was one of the causes of weight gain⁽¹⁰⁾.

The result of linear regression analysis showed that there was a significant influence between age and body weight after having FP injection. Furthermore, it was obtained $p = 0.000$ ($p < 0.05$). Body weight before injection influenced body weight after injection and it was obtained $p = 0.000$ ($p < 0.05$). Besides, there was a significant effect on FP duration against body weight after having FP injection and it was obtained $p = 0.58$ ($p > 0.05$).

Depo provera was 6-alpha-medroksi progesterone that was used for parenteral contraception, and it had strong and highly effective progestagen effect. In long-term use of DMPA (up to two years) also led to weight gain, cancer, vaginal dryness, emotional disturbances, and acne because long hormonal use could disrupt the balance of estrogen and progesterone in the body and it caused normal cell changed to be abnormal. If it reached

two years, the clients had to move to another FP system, such as condom, spiral, or calendar (Saifuddin, 2006). Generally, weight gain was not too serious and it varied between less than 1 kg to 5 kg in first year of injection. Actually, the cause of weight gain was unclear. Apparently, It was due to the increase of body fat, and it was not due to fluid retention. The hypothesis stated that DMPA stimulated the appetite-controlling center in hypothalamus, which caused the food acceptor more than usual⁽¹¹⁾.

CONCLUSION

Conclusion: Respondents of this research were FP acceptors who were mostly 31-35 years old with FP duration to be FP acceptor mostly in 1-5 years. The mean difference of weight gain on FP acceptor of progestin injection was greater rather than the mean difference of weight gain on FP acceptor of combination injection. The use of either progestin injection or combination injection proved that those injection could increase FP acceptor's weight at Pones Panekan Public Health Center, Magetan, Indonesia.

Suggestion It was expected to provide information, consideration, and direction in making policy for Health Department of Magetan in order to increase Active FP participant for improving health degree. It was expected that the results of this study could be implemented by Public Health Center in providing information about DMPA and its side effects. Therefore, the health care workers could give an effective service.

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