e-ISSN2745-7818

Oral Presentation
THE 1ST SYEDZA SAINTIKA INTERNATIONAL CONFERENCE ON NURSING, MIDWIFERY, MEDICAL LABORATORY TECHNOLOGY, PUBLIC HEALTH, AND HEALTH INFORMATION MANAGEMENT (SeSICNiMPH)

THE DIFFERENCES IN THE INCREASING OF AVERAGE BLOOD PRESSURE IN 1-MONTH INJECTING ACCEPTORS WITH 3-MONTH IN ACCEPTORS

Dewi Fransisca[1*], Ramah Hayu[2]
[1] Department of Midwifery, Syedza Saintika Institute of Health Science, Indonesia

* Corresponding author: alyanisaulfaiha@gmail.com

ABSTRACT

The increase in blood pressure is the change in blood volume or the elasticity of blood vessels, both systole and diastole, which increases by 10 mmHg or more, which is measured using a sphigmanometer. This increase in blood pressure is caused by many factors, one of which is the use of hormonal injection contraceptives. The purpose of this study was to determine the difference in the average increase in blood pressure between 1 month injection acceptors and 3 months injection acceptors at BPM Martini Boer, Padang Pasir Public Health Center. This type of research is observational with a cross sectional design. Samples were taken by consecutive sampling of 1 month and 3 months injection family planning acceptors who came to BPM Martini Boer who met the study inclusion criteria. The data were collected through the KB participant card and data processing used the Independent T Test. Based on the results of the study, the mean blood pressure of systolic injection acceptors for 1 month and 3 months was 114.90 mmHg and 120.10 mmHg with a value of p = 0.004 and the average blood pressure for injection diastolic acceptors for 1 month and 3 months was 76, 10 mmHg and 81.50 mmHg with p = 0.000 (p <0.05). There was a difference in the increase in the mean blood pressure of the injection acceptors for 1 month and 3 months. The results of this study indicated that there was a difference in the increase in the mean blood pressure of 1-month injection acceptors and 3-month injection acceptors. It is hoped that the results of this study will be input by midwives in providing information about the side effects of injection contraceptives on increasing blood pressure.

Keywords: injection for 1 month, injection for 3 months, blood pressure

INTRODUCTION

A non-communicable disease that is commonly found in society today is hypertension which begins with pre-hypertension. The World Health Organization (WHO) noted that in 2012 there were at least 839 million cases of hypertension, estimated to be 1.15 billion in 2025 or around 29% of the world's total population, while the sufferer was more in women (30%) than men (29%). . Nationally, the results of Basic Health Research (Riskesdas) in 2007 showed a high prevalence of non-communicable diseases, where hypertension was in the first place with a percentage of 31.7% (Ardiansyah and Fachri, 2017). The 2007 Riskesdas report shows that the prevalence of hypertension among Indonesian women in the middle ages of 34-35 years begins to follow male hypertension, presumably this is related to the use of hormonal contraceptives, according to several studies which reported an association of hypertension with the use of hormonal contraceptives. The use of hormonal contraceptives can affect the balance of hormones resulting in an increase in blood pressure. Hormonal

contraceptives can cause hypertension in approximately 4-5% of women with normal blood pressure before taking the drug, and can increase blood pressure in 9-16% of women who have suffered from previous hypertension (Isfandari, Siti, 2016). According to Sujono, et all. 2013, combined hormonal birth control with estrogen and progesterone causes an increase in blood pressure but within the normal blood pressure range (<140 mmHg). The division of hormonal family planning consists of modern types of implants, injections and pills. The contraceptive method that is widely used by family planning acceptors is injection (40.88%) and the second place is the pill (28.48%) (Fransisca, Dewi et all, 2020).

Injectable contraception consists of a combination injection containing the hormones estrogen and synthetic progesterone, given once a month and an injection of Depo Medroxyprogesterone Acetate (DMPA) containing the synthetic progesterone hormone, once every three months. The hormone progesterone facilitates the conversion of carbohydrates and sugars into fat, so that a lot of fat accumulates under the skin and is not due to retention (accumulation) of body fluids, besides depoprovera also stimulates the appetite control center in the hypothalamus which can cause acceptors to eat more than usual. This constriction and blockage by fat stimulates the heart to pump blood even stronger in order to supply tissue blood needs. As a result, blood pressure increases, then high blood pressure occurs. So it is known that the use of depoprovera contraception is one of the supporting factors for the emergence of high blood pressure if this contraceptive is used for a long period of time (Ardiansyah and Fachri, M, 2017). Meanwhile, the estrogen content in hormonal injection contraceptives is thought to increase the levels of renin substrate. Renin substrate (plasma protein) is a globulin called a renin substance (angiotensinogen) to release angiotension I. Agiotension I has mild vasoconstrictor properties so that within a few seconds after the formation of angitency I angiotension II is formed. During angiotension II in the blood, it has an effect as vasoconstriction on the arterio in the blood which can increase peripheral resistance resulting in an increase in arterial pressure, where this arterial pressure will affect the increase in blood pressure when examining with a tensimeter (Guyton, 1996 in Cunningham, 2005 in Harini, R 2010). The side effects of injection contraceptives include increased blood pressure, menstrual disorders, depression, vaginal discharge, acne, changes in libido, changes in body weight, dizziness, headaches and hematomas (Harini, R. 2020).

The number of side effects from injection contraceptives and the high acceptors of injection contraceptives are the background of this study. The purpose of this study was to determine the difference in the increase in the mean blood pressure of 1 month injection acceptors and 3 month injection acceptors.

MATERIAL AND METHODS

This type of research used observational with cross sectional design. Sampling was conducted at the Independent Practice Midwife (BPM) Martini Boer, Amd. Keb. The study was conducted from January to August 2018. The population in this study were all 1 month injection family planning acceptors and 3 month injection family planning acceptors, the sample in this study was part of the population that met the inclusion and exclusion criteria of the study as many as 20 people, which

were divided into 2 group, 10 injection acceptors for 1 month and 10 injection acceptors for 3 months. The sampling technique was Consecutive Sampling (Notoatmodjo, 2012).

Inclusion Criteria: Injectable family planning acceptors ≥2 years, not smoking, not consuming caffeine and alcohol, aged 20-35 years, willing to be respondents. Exclusion Criteria: history of hypertension. The independent variable of the study was 1 month injection and 3 month injection, the dependent variable was blood pressure. Data collection through the respondent's family planning card. Data analysis using T Independent test.

RESULT

a) The mean blood pressure of systole for injection acceptors was 1 month and injection was 3 months

Table 1
Average systolic blood pressure for injection acceptors for 1 month and 3 months at BPM Martini Boer, Padang Pasir Community Health Center in 2018

Group	systolic blood pressure		P Value
	Mean mmHg	SD mmHg	
Acceptors for 1 month	114,90	3,54	0,04
Acceptors for 3 month	120,10	3,47	

Based on table 1, the average systolic blood pressure for 1 month injection acceptors is 114.90 mmHg with a standard deviation of 3.54 mmHg and a systolic blood pressure for 3 months injection acceptors is 120.10 mmHg with a standard deviation of 3.47 mmHg.

b) The mean blood pressure of diastole for injection acceptors was 1 month and the injection was 3 months

Table 2
Average Diastolic Blood Pressure for Injecting Acceptors at BPM Martini Boer, Padang Pasir Community Health Center Work Area in 2018.

Group	Diastolic Blood Pressure		P Value
	Mean mmHg	SD mmHg	
Acceptors for 1 month	76,10	2,47	0,000
Acceptors for 3 month	81,50	2,67	

Based on table 2, it was found that the average 1 month injection diastolic blood pressure was 76.10 mmHg with a standard deviation of 2.47 mmHg and the diastolic blood pressure for 3 months injection acceptors was 81.50 mmHg with a standard deviation of 2.67 mmHg.

c) The Difference in the Mean Increase in Blood Pressure at 1 month injection acceptors with 3 months injection

Table 3

Difference in the increase in mean blood pressure at acceptors Injections 1 month by 3 months at BPM Martini Boer of Puskesmas Work Area The Desert of 2018

T Table	T Count	n	P Value
2,086	-3,312	20	0,004

Based on table 3, the results of the T-Test Independent statistical test, namely T table> T count with P value = 0.004 means p <0.05, that is, there is a difference in the increase in the mean blood pressure of 1 month injection acceptors with 3 months injection acceptors at BPM Martini Boer

DISCUSSION

1) The mean blood pressure of systole for injection acceptors was 1 month and injection was 3 months

Based on the results of the study, it was found that the 1 month injection systolic blood pressure was 114.90 mmHg and the 3-month systolic blood pressure was 120.10 mmHg, which means that the 1 month injection systolic blood pressure was lower than the average. -Average systolic blood pressure for injection acceptors 3 months.

The results of this study are the same as the research conducted by Hariani, 2010 at Puskesmas Pakisaji Malang. It was found that the 1-month injection family planning acceptor systole was lower than the 3-month injection contraceptive acceptor systole (110.00 / 165.50).

Estrogen content found in hormonal injectable contraceptives is thought to increase renin substrate levels. Renin substrate (plasma protein) is a globulin called a renin substance (angiotensinogen) to release angiotension I. Agiotension I has mild vasoconstrictor properties so that within a few seconds after the formation of angitency I angiotension II is formed. During angiotension II in the blood, it has an effect as vasoconstriction on the arterio in the blood which can increase peripheral resistance resulting in an increase in arterial pressure, where this arterial pressure will affect the increase in blood pressure when examining with a tensimeter (Guyton, 1996 in Cunningham, 2005 in Harini, R 2010). However, in this study the 3-month injection acceptors had higher systolic blood pressure than the 1-month injection acceptors.

2) The mean blood pressure of diastole for injection acceptors was 1 month and the injection was 3 months

Based on the results of the study, the average 1 month injection diastolic blood pressure was 76.10 mmHg and the 3-month injection diastolic blood pressure was 81.50 mmHg, which means that the 1 month injection diastolic blood pressure was lower than the average 1 month injection diastolic blood pressure. the mean blood pressure of the injector diastole for 3 months.

This study is the same as the research conducted by Hariani, 2010 where the results showed that the 1-month injection diastolic

blood pressure was lower than the 3-month injection acceptor (71.58 / 75.63). In theory, the progesterone hormone makes it easier to convert carbohydrates and sugars into fat, so that a lot of fat accumulates under the skin and is not due to retention (accumulation) of body fluids, besides that depoprovera also stimulates the appetite control center in the hypothalamus which can cause acceptors to eat more than usual. . This constriction and blockage by fat stimulates the heart to pump blood even stronger in order to supply tissue blood needs. As a result, blood pressure increases, then high blood pressure occurs. So it is known that the use of depoprovera contraception is one of the supporting factors for the emergence of high blood pressure if this contraceptive is used for a long period of time (Ardiansyah and Fachri, M, 2017).

3) The Difference in the Mean Increase in Blood Pressure at 1 month injection acceptors with 3 months injection

Based on the results of the study, the results of the T-Test Independent statistical test, namely T table> T count with P value = 0.004 means p <0.05, that is, there is a difference in the increase in the mean blood pressure at 1 month injection acceptors with 3 months injection acceptors at BPM Martini Boer. The results of this study are the same as research conducted by Harini, 2010 that there is a difference in blood pressure in the use of 1-month injection contraception with 3-month injection contraception. The results of this study are not the same as the research conducted by Warsini and Rahayu, 2016, with the results of the study that there was no significant difference between the increase in systolic and diastolic blood pressure in the two groups of 1-month injection and 3-month injection family planning acceptors.

The use of depot medroxyprogesterone acetate can suppress endogenous estrogen. Reducing endogenous estrogens can lead to increased excretion of very low density lipoproteins in the liver, as well as the breakdown of high density lipoproteins. The more low density lipoproteins in the plasma, the less high density lipoprotein levels. It can be concluded that with the increase in low density lipoproteins, the more high density lipoproteins clean cholesterol carried by low density lipoproteins (Fransisca, Dewi et all 2020). By decreasing the high density lipoprotein levels, it will increase the risk of increasing blood pressure.

CONCLUSION

The results of this study are there is a difference in the average increase in blood pressure between 1 month injection acceptors and 3 months injection acceptors, namely the value of systolic = 0.004 and p diastole = 0.000, which means p <0.05 in BPM Martini Boer, Padang Pasir Public Health Center. Suggestions for practicing midwives to conduct pre-installation counseling for family planning acceptors and post-installation counseling for family planning acceptors regarding the side effects of injection contraception, especially its effect on blood pressure.

REFERENCES

Ardiansyah, Fachri M, 2017, The Relationship of

Three-Month Contraceptive Use for One Year with Increased Pressure, Journal of Public Health, Vol. 11, No. 1, pp. 56-62

Fransisca Dewi, Yanwirasti, Anas Eliza, 2020, The Effect of Old Medroxyprogesterone Acetate Depo Contraception on LDL and HDL Levels, Endurance Journal: Scientific Study of Health Problems, Vol. 5, No. 1, pp 91-97

Harini Ririn, 2010, Differences in the Effect of the Use of Injectable Contraceptives (cyclofem and progestin) on the increase in blood pressure in fertile aged women in the working area of Puskesmas Pakisaji Malang, Journal of Nursing, Vol. 1, No. 2, pp 144-150

Isfandari S, Siahaan S, Pangaribuan L, Lolong Dina B, 2016, Contribution of the Use of Hormonal Contraceptives to Differences in the Prevalence of Female and Male Hypertension in Indonesia: Gender Perspectives, RISKESDAS 2013, Health Research Bulletin, Vol. 44, No. 1, pp 33-40

Notoatmodjo, Soekidjo. 2012. Health Research Methodology. Jakarta: Rineka Cipta

Sujono Tanti A, Milawati A, Hakim Arif R, 2013, The Effect of Contraceptive Use on Increased Blood Pressure of Women at Wonogiri Health Center, Indonesian Journal of Clinical Pharmacy, Vol. 2, No. 2, pp 61-70

Warsini, Rahayu Herlina P, 2016, Differences in Increased Blood Pressure of 1-month and 3-Month Injecting Contraceptive Users for Injecting Contraceptive Equipment Acceptors in Jatimulyo Village, Mantingan District, Ngawi Regency, "KOSALA" JIK, Vol. 4, No. 2, pp 131-138