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Positif Correlation of Hormonal Contraception and The Occurrence of Leucorrhoea



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Abstract

Hormonal contraceptives contain estrogen and progesterone. Prolonged use causes a higher dose of the estrogen and progesterone hormones that can cause leucorrhoea or vaginal discharge. Analyzing and reviewing articles related to the relation between the use of hormonal contraceptive methods with the leucorrhoea occurrence. The literature review method used a systematic mapping study design. Literature sources were obtained from the Google Scholar, Pubmed, and Proquest databases with 6 years of publication. The literature collection strategy using PEOS was then selected to produce 10 articles that matched the research criteria. Of 10 articles that examined the type of hormonal family planning (KB) that were mostly used were 3 articles with injectable KB, 2 articles on pill KB, 2 articles on KB implants, and 3 articles that did not mention the type. There were 3 articles describe that both <1 year and >1 year duration of the usage can cause vaginal discharge. There were 7 articles with analytical tests, 4 articles (57%) stated that there was a relation between the use of hormonal contraceptive methods and the occurrence of vaginal discharge, while 3 articles (43%) stated that there was no relation between the use of hormonal contraceptive methods and the occurrence of vaginal discharge. There were 3 articles that did a descriptive analysis, it was found that contraceptive users who experienced vaginal discharge were more than 35%. The use of hormonal contraception can cause physiological vaginal discharge since the hormones progesterone and estrogen change the flora and pH of the vagina, besides that vaginal discharge occurs because personal hygiene is not correct.

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INTRODUCTION

Family planning is one of the efforts that can be done by a married couple which aims to determine the number of children and the range of children that they desired. Efforts that married couples can do are by using contraceptives (Fauziah, 2020). Types of contraception can be divided into two ways; the first, using contraception devices, and the second is contraception without using tools. Contraceptive devices with tools are further divided into two types according to how they work, namely hormonal contraceptives and non-hormonal contraceptives. Hormonal contraception is one of the contraceptives that use a device. Examples of contraceptives that use tools include pills, injections, and implants (Astuti et al., 2019).

The use of hormonal contraceptives in the current era is a woman's choice, since it is considered to have a very effective performance. Hormonal contraceptives are contraceptives that use base materials containing estrogen and progesterone preparations (Hastuti, 2015). The use of contraceptives is a double-edged thing, because apart from being a necessity, it can also cause side effects (Handayani, 2021).

The side effect of the hormonal contraceptive method that causes discomfort to the acceptor is a vaginal discharge (Imelda & Nurbaiti, 2018). The way hormonal contraception works is to thicken cervical mucus until the vaginal discharge occurs (Sari et al., 2015). Vaginal discharge is a condition where there is fluid other than blood in the vagina. Physiological vaginal discharge that occurs in hormonal contraceptive users can increase by 50% when compared to women of childbearing age who do not use contraceptives. Vaginal discharge can also occur if the acceptor uses hormonal contraception for a long time, this happens because prolonged use of hormonal contraception can reduce the natural resistance of the portia wall, so it can cause excessive vaginal discharge (Fatmawati et al., 2020).

The problem that causes the physiological vaginal discharge to become pathological vaginal discharge is due to hormonal contraceptive acceptors who do not maintain cleanliness in the vaginal area. Pathological vaginal discharge can occur due to the presence of the hormone progesterone and the hormone estrogen in hormonal contraceptives, thereby changing the flora and pH of the vagina so that it becomes easier for fungi to thrive in the vagina and can cause pathological vaginal discharge (Fatmawati et al., 2020).

Pathological vaginal discharge can affect

women and can occur at any age in approximately 50% (Hidayati et al., 2020). According to WHO in 2016 as stated on the research conducted by (Kustanti, 2017), that there are approximately 75% of women worldwide experience vaginal discharge, this vaginal discharge must occur once in a lifetime and approximately 45% of women worldwide will experience vaginal discharge twice or may occur more than twice. Meanwhile, in countries in the European continent that experience vaginal discharge, approximately 25%. Women of childbearing age in Indonesia have the potential to experience vaginal discharge for around 90%, this is because Indonesia is a country with a tropical climate, which causes yeast to grow very easily. Based on statistical data (BKKBN, 2014) in research by (Hidayah et al., 2021) 45% of women of childbearing age in East Java experience vaginal discharge. From the data above, it can be concluded that the incidence of vaginal discharge in women in the World, Europe, and Indonesia is still quite high (Handayani, 2021).

Based on the research conducted by (Rahayu et al., 2015) that the use of contraceptives containing hormones is associated with the occurrence of vaginal discharge in women of childbearing age. It was found that there were 24 respondents (80%) of hormonal family planning acceptors who experienced a physiological vaginal discharge, and respondent who experience pathological vaginal discharge were 6 respondents (20%).

The impact that occurs from the occurrence of pathological types of vaginal discharge that lasts for a long time will cause a germ that causes infection in the area traversed. The area traversed is starting from the mouth of the bladder which then goes to the lips of the genitals to the uterus and continues to the fallopian tubes, so that it can cause pelvic inflammatory disease and the most dangerous impact is that it can cause infertility or not being able to have children (Azizah & Dewi, 2020).

The potential for pathological vaginal discharge is can be anticipated by increasing knowledge and understanding of vaginal discharge properly and correctly. It is necessary to do prevention so that vaginal discharge does not get worse and does not endanger the health of hormonal contraceptive acceptors (Shadine, 2009). Pathological vagina discharge can be prevented by implementing a clean and healthy lifestyle such as keeping the genitals clean, how to wash hands before cleaning the genitals, performing vulvar hygiene from front to back and drying using a dry tissue with

one wiper, avoiding wearing tight underwear (Abrori et al., 2017).

METHOD

In this study, the researcher used a Literature Review research type with a Systematic Mapping Study design. This study used secondary data taken from previous official research articles and journals. The articles and research journals used by the researcher are those published in the last 6 years, namely in publications from 2016 to 2021. The sources of literature used were obtained from three databases; the Google Scholar dataset, PubMed, and ProQuest.

The literature research step was first, determine the topic in this study "The Relation between the Use of Hormonal Contraceptive Methods with the Occurrence of Leucorrhoea". Second, formulate PEOS namely Population of contraceptive acceptors, Exposure to hormonal contraceptive use, Outcome of vaginal discharge, cross sectional and observational Study Design. The third is to make keywords for the national articles search "Hormonal Contraception AND Leucorrhoea on Acceptors", "Impact of Hormonal Contraceptives AND Leucorrhoea on Acceptors". To search for international articles, the keywords are "Hormonal Contraceptives AND Leucorrhoea", "The Effect of Hormonal Contraception AND Leucorrhoea". The

fourth is to search the literature in the database. The fifth is to determine the inclusion criteria and exclusion criteria, namely the title of the article according to the research theme, the article can be viewed full-text access, articles have DOI or ISSN, and articles use Indonesian and English. The last is to document search results in a prism flow chart with the final journal articles that will be used in this study as many as 10 articles.

In this research, The researcher described the research journal articles that had been obtained by starting from identifying the author, year of publication of the article, title of the research, purpose of research, methods used, significant value of research results in each research journal. After identifying, the researcher then conducted a study by looking for similarities and looking for differences in articles, including types of hormonal contraceptives, duration of the usage of hormonal contraceptives, the incidence of vaginal discharge in users of hormonal contraceptives. Then, the researcher described the results of the analysis of journal articles about the relation between the use of hormonal contraceptive method with the occurrence of vaginal discharge. So that at the end of the study, research can concluded a summary of the relation between the use of hormonal contraceptive methods and the occurrence of vaginal discharge

RESULT

Research Characteristics

Based on the results of a literature research from several databases, the research found 10 articles for this research.

Journal articles that researcher get were from Google Scholar, Pubmed, and Proquest. The researcher found 8 national articles and 2 international articles. All journal articles were indexed by DOI and/or ISSN.

Table 1: Research Characteristic

Category	N	%
Year of Publication		
2016	1	10
2017	3	30
2018	1	10
2019	3	30
2020	1	10
2021	1	10
Total	10	100
Data Based		
<i>Google Scholar</i>	8	80
<i>Pubmed</i>	1	10

<i>Proquest</i>	1	10
Total	10	100
Research Design		
<i>Prospective Observational Study</i>	1	10
<i>Cross Sectional Study</i>	9	90
Total	10	100
Country		
Indonesia	8	80
Pakistan	1	10
Egypt	1	10
Total	10	100

Based on the table above, it can be seen that the most widely used articles are those published in 2019 and 2017 with 3 articles (30%). The majority of data based using Google Scholar up to 8 articles (80%). The research design in the articles use the most is the Cross Sectional Study as many as 9 articles (90%). The majority of the articles use came from Indonesia as many as 8 articles (80%).

Respondent Characteristic

All articles studied were hormonal contraceptive acceptors with the following characteristics:

Tabel 2: Respondent Characteristic

Category	N	%
Group of Age		
20-35 years	8	80
>35 years	1	10
No description	1	10
Total	10	100
Number of respondents		
Above 100	3	30
Below 100	7	70
Total	10	100
Duration of the Usage		
< 1 year	2	20
> 1 year	1	10
Not mentioned	7	60
Total	10	100
Types of the Contraception		
Inject	3	30
Pill	2	20
Implant	2	20
Hormonal Contraception	3	30
Total	10	100

The age of the respondents in the 10 research articles used is the majority at the age of 20-35 years as many as 8 articles (80%). The number of respondents in the articles used the majority less than 100 respondents as many as 7 articles (70%). The duration of the usage of hormonal contraception less than 1 year is 2 articles (20%), over 1 year is 1 article (10%), and the duration of the usage is not stated in detail in 7 articles (70%). The use of injectable hormonal contraception is 3 articles (30%), pill type is 2 articles (20%), implant type is 2 articles (20%) and articles containing hormonal contraceptive use without mentioning the type are 3 articles (30%).

DISCUSSION

Hormonal Contraception Types

The results of ten articles studied were using

various types of hormonal contraceptives. The types of hormonal contraceptives used are injections, pills, and implants. These three types of hormonal

contraceptives contain progesterone and estrogen hormones, yet, the hormone levels of each type of hormonal contraception are different (Armerinayanti & Lestari, 2018). The use of hormonal contraceptives is currently very widely used by women of childbearing age because it is considered one of the most effective and reversible contraceptives in preventing pregnancy (Sulistyawati, 2018).

In accordance with the literature review that had been carried out, it was known that the use of hormonal contraception with the injection type was the most preferred, with a total of 3 articles (30%). Hormonal contraceptives with injection types in Indonesia itself are very widely used by women of childbearing age because this type of injection can work effectively, the use of injections is very practical and the price is also relatively cheap and safe for women of childbearing age (Marmi, 2018). This is in accordance with the research conducted by (Afianti & Budiarmo, n.d.) that injectable contraceptives are widely used since they are cheap and are believed to have high convenience and effectiveness.

The second choice of the hormonal contraception used is the hormonal contraception in the pill type with a total of 2 articles (20%). The use of contraception pills is chosen because if you want to stop using it, your fertility will return immediately when compared to other types of hormonal contraceptives (Setyaningrum, 2016). This is in accordance with a research conducted by (Rezk et al., 2017) that of the 430 respondents in his research, most of the 236 respondents (55%) used combined oral contraceptives rather than using IUD contraception, as many as 194 respondents (45%).

The third choice of the hormonal contraception used is implant-type with a total of 2 articles (20%). The use of contraceptive implants is an option because implants are a long-term method of hormonal contraception. Meanwhile, 3 articles (30%) did not include the type of hormonal contraception.

Based on the description above, the result of this study showed that there are three types of hormonal contraception that are frequently used, starting from injectable contraceptives, pills and implants. All of these types use base materials that contain the hormone progesterone and the hormone estrogen. Starting from pills, injectable contraceptives, and implants, they all have different

ways of working and have their own advantages and disadvantages.

The Duration of Hormonal Contraception Usage

In accordance with the result of a literature review from 10 articles, it is known that the use of hormonal contraception is divided into three categories; 7 articles that did not clearly state the duration of hormonal contraception usage. There were 3 articles describing the duration of hormonal contraception usage; 1 article describing the duration of the usage < 1 year, 1 article describing the duration of the usage < 1 year and > 1 year, and 1 article describing the duration of the usage > 3 years and < 3 years.

The use of hormonal contraception is currently very widely used by women of childbearing age for a long time because it is considered to be working effectively, very practice, and the cost is relatively cheap and safe when used by women of childbearing age (Putri, 2019).

According to (Setyoningsih, 2020) the duration of the hormonal contraceptive usage can affect the occurrence of side effects that can be experienced by the acceptor. The longer of the usage, the greater the chance of experiencing side effects that arise in contraceptive acceptors.

From the various descriptions above, researchers can conclude that the use of hormonal contraceptives from the injection type, pill type and implant type for a long period of time can cause the amount of the hormone progesterone and estrogen in hormonal contraceptives to be higher. So that, there will be an imbalance between hormones in the female body.

Leucorrhoea Occurrence

The results of the ten articles studied, 8 articles (80%) showed the number of presentations of vaginal discharge but did not describe the type of vaginal discharge, including 45.6% (Fatmawati et al., 2020), 30.5% (Farahdiba, 2017), 84% (Priyanti & Syalfina, 2017), 72.2% (Sulistyawati, 2018), 39.4% (Putri, 2019), 71.8% (Riza et al., 2019), 100% (Purnamasari & Hidayanti, 2019), dan 43.6% (Afianti & Budiarmo, n.d.). There are 2 articles (20%) describing the type of vaginal discharge, namely 35.2% with pathological vaginal discharge (Setyoningsih, 2020), and 20.3% with physiological and pathological vaginal discharge (Rezk et al., 2017).

From the number of presentations, it can be concluded that the occurrence of vaginal discharge was mostly experienced by acceptors, namely more than 20% experienced vaginal discharge. Otherwise, if it is averaged, the acceptors experienced vaginal discharge was 54.6%. Vaginal discharge is one of the things that women often feel or complain about during their lives, starting from their teenage years, during their reproductive years and during menopause (Salamah et al., 2020).

Vaginal discharge can be classified into two types; vaginal discharge with a physiological type and vaginal discharge with a pathological type (Nanur et al., 2019). Physiological type of vaginal discharge is a vaginal discharge that can occur before menstruation and after menstruation. Moreover, vaginal discharge can occur due to sexual stimulation. The characteristics of physiological type of vaginal discharge are having a clear color, no odor and no itching, pain and burning sensation (Shadine, 2009). While the pathological type of vaginal discharge usually occurs because it is caused by several infection of the genital organs things, which occurs due to poor vulvar hygiene behavior, excessive use of vaginal cleaning fluid, using powder or perfumed soap in the vaginal area. The characteristics of pathological vaginal discharge are discharge in large quantities, choosing a color (example: yellow/green/grey or milky) and there is itching, pain and burning sensation (Purnasari, 2018).

Physiological type of vaginal discharge that is not treated promptly and correctly will become a pathological type of vaginal discharge that can cause complications such as pelvic inflammatory disease and can cause infertility due to damage and blockage of the fallopian tubes (Shadine, 2009).

Leucorrhoea can be prevented or overcome by the acceptor taking care of the cleanliness of his genitals, using feminine cleansing soap but with soap that does not disturb the pH balance of the vagina, rinsing the vagina in the right way, starting from the front to the back, using underwear that easily absorbs sweat, and always change sanitary napkins during the menstruation (Hangganingrum & Ariandini, 2020).

The description above explained the importance for a woman to be able to know and understand the incidence of vaginal discharge, considering that there are two categories that have the potential to occur in women, normal and abnormal vaginal discharge. It is necessary to understand well about the symptoms and how to

overcome them, especially women of childbearing age.

The Relation between the Use of Hormonal Contraception Methods with The Leucorrhoea Occurrence

Based on the 10 articles reviewed, there were 7 articles using analytical tests, 4 articles (57%) saying there was a relationship between the use of hormonal contraceptive methods and the incidence of vaginal discharge, while 3 articles (43%) said there was no relationship between the use of hormonal contraceptive methods and the incidence of vaginal discharge. There are 3 articles that did a descriptive analysis, it was found that users of hormonal contraceptive methods who experienced vaginal discharge were more than 35%.

The result of the research conducted by (Purnamasari & Hidayanti, 2019) explained that based on statistical tests with *chi squares*, a p value of 0.037 was obtained at a significant level of 5%, which means that there is a relation between the use of contraceptives and the occurrence of vaginal discharge in women of childbearing age.

Research conducted by (Priyanti & Syalfina, 2017) explained that (p-value = 0.010; PR = 10,000; 95% CI = 1.732-57.722) which means that there is an effect of using hormonal contraceptive methods on the occurrence of vaginal discharge, and stated that the use of hormonal contraceptive methods causes 10x the risk of increasing the occurrence of vaginal discharge in women aged fertile compared to those using non-hormonal contraceptives.

Research conducted by (Putri, 2019) explained that the use of Depo Progesterone injection contraception can cause users to experience side effects of vaginal discharge. This is also in accordance with research conducted by (Syahlani et al., 2013) that based on the results of the analysis using the *chi-square* test with a confidence level of $p < \alpha$ this means that $H_0 =$ rejected, H_a accepted, meaning that there is a relationship between the use of hormonal contraceptives and the incidence of vaginal discharge in the Work Area of Pekauman Health Center, Banjarmasin City. This is also in line with research conducted by (Kusuma, 2016) explained that based on statistical tests with *chi-square* showed that there was a relationship between the use of contraceptive methods ($p = 0.0098$) with the occurrence of subjective complaints, namely vaginal discharge.

Vaginal discharge is a side effect that occur due to excess progesterone and estrogen hormones that

happen based on the use of hormonal contraceptives (Priyanti & Syalfina, 2017). This is in accordance with a research by (Ishtiaq et al., 2016) who explained that the use of hormonal contraceptives causes side effects of vaginal discharge.

In addition, the use of contraception for a long period of time or for a long time will cause an increase in the dose content of the hormone progesterone and the hormone estrogen to be higher in the body of women who use hormonal contraceptives and this is what can cause women of childbearing age, especially acceptors of hormonal contraception experiencing vaginal discharge (Farahdiba, 2017).

On the research that have been conducted by (Farahdiba, 2017) explained that there is a relationship between the duration of use of oral and injectable hormonal contraceptives with the incidence of vaginal discharge, which obtained a P value = $0,021 < \alpha = 0,05$ and a P value = $0,044 < \alpha = 0,05$ while the implant type of hormonal contraception did not show a long relation of the implant-type contraceptives usage with the incidence of vaginal discharge with a value of $P = 0,700 < \alpha = 0,05$.

Research conducted by (Setyoningsih, 2020) explained that the long use of DMPA contraception causes the acceptor to experience side effects, namely vaginal discharge, this is in accordance with the research by (Rezk et al., 2017) which used a prospective observational design, found that out of 236 women using combined oral contraceptives with a duration of 6 weeks experiencing vaginal discharge, as many as 58 women experienced vaginal discharge for 6 months, 48 women experienced vaginal discharge for 6 months, and 42 women experienced vaginal discharge for 12 months. The decrease in the occurrence of vaginal discharge in combined oral contraceptive users can be affected by correct personal hygiene.

Vaginal discharge can occur due to the effects of hormonal contraception, those which containing the hormone progesterone and estrogen hormones that change the flora and pH of the vagina, thereby causing the yeast to thrive in the vagina and cause vaginal discharge to occur. Apart from the influence of high levels of progesterone and estrogen hormones, vaginal discharge can also occur due to a lack of proper personal hygiene in women of childbearing age carried out by contraceptive acceptors (Setyoningsih, 2020).

There are three articles stated that there is no relation between the incidence of vaginal discharge and the use of hormonal contraception. First is research conducted by (Sulistiyawati, 2018) data analysis showed $p = 0,351$ that the use of contraceptives, both hormonal and non-hormonal types, has no relation with the occurrence of vaginal discharge. Further research conducted by (Riza et al., 2019) data analysis showed that $p = 0,808$ this means that there is no relation between the use of contraceptives and the occurrence of vaginal discharge and $p = 0,000$ this means that there is a relation between personal hygiene and the occurrence of vaginal discharge. Moreover, research conducted by (Afianti & Budiarmo, n.d.) which data analysis showed that p value = 0.129 this means that there is no relation between the use of injectable hormonal contraceptives and the occurrence of vaginal discharge in family planning acceptors at Clinic X, Cisauk District.

The description above then can be concluded that the use of hormonal contraceptives and the duration of the hormonal contraceptives usage can cause side effects, namely the occurrence of vaginal discharge. This can happen because the base materials for hormonal contraception are drugs that contain estrogen and progesterone preparations, so if they are used for a long time, it will cause an increase in the hormone progesterone and estrogen hormone in the body of women of childbearing age who use hormonal contraceptives, thus causing the occurrence of vaginal discharge. The vaginal discharge that occurs is the effect of the content of the hormone progesterone and the hormone estrogen which changes the flora and pH of the vagina, causing yeast to easily grow in the vagina.

CONCLUSION

Based on the result of a review that has been carried out by the researcher, it is found that hormonal contraceptives are contraceptives in which the hormones estrogen and progesterone are contained. The types of hormonal contraception found in this study were injections, pills, and implants. The duration of using hormonal contraceptives in a period of less than 1 year and more than 1 year can both cause side effects, namely the occurrence of vaginal discharge. The occurrence of physiological vaginal discharge experienced by hormonal contraceptive acceptors is more than 20% or if it was averaged is around 54.26%. It can be said

that the occurrence of vaginal discharge in users of hormonal contraceptives is still high. So, from the result of the review that had been carried out by researcher, it could be concluded that most of the articles described a relation between the use of hormonal contraceptive methods and the occurrence of vaginal discharge. Vaginal discharge is not only due to the use of contraception, but can also be caused by the acceptor's personal hygiene being not appropriate or correct.

SUGGESTION

1. For Profession

For health workers, especially midwives, it is hoped that they can provide counseling to women who use contraception to increase knowledge and understanding about leucorrhoea properly and correctly

2. For Women Using Contraception

Women who use hormonal contraception can keep the vaginal area clean with good personal hygiene.

3. For The Next Researcher

The results of this study in the future can be used as a source of data, additional knowledge, references and a review of the literature that discusses the relationship between the use of hormonal contraceptive methods and vaginal discharge.

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CONFLICTS OF INTEREST

The authors declare there is no conflict of interest in the research.

AUTHOR CONTRIBUTIONS

In this research the first author acts as a correspondent who is responsible for the research process up to publication by writing articles that have been adapted to journal guidelines. The second author assisted in data collection and data processing. The third author assisted in the research process and assisted in translation.

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