Comparison of Tubal Sterilization Syndrome between Pomeroy and Laparoscopic Falope Ring Techniques

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Abstract

Objective :
Find out the comparison of post-tubal sterilization syndrome between the Pomeroy technique and the Falope Ring Laparoscopy.

Methode :
This study was an observational analytic study using a cross-sectional study design . This research was conducted at H. Adam Malik General Hospital Medan, RSUD dr. Pirngadi Medan and Medan MANTAP Clinic. The time of the study begins in January 2019 until the number of samples is reached. Data will be analyzed descriptively to see the frequency distribution of the studied variable .

Results :
Based on the characteristics of the research subjects found the most age groups at the age of ≥35 years, the most parity at> 4, and all have been done tubal sterilization ≥ 6 months . Menstrual disorders such as premenstrual syndrome are more common in the pomeroy sterilization group compared with the laparoscopic group. Menstrual cycle intervals, menstrual length and number of bleeding per day were not significant differences in the two study groups. Intermenstrual bleeding and dysmenorrhoea were also not significant differences in the two groups. Clinically, changes in libido and dyspareunia are more common in the laparoscopic group, although not statistically significant.

Conclusion:
There were no statistically significant differences in menstrual disorders, libido, and dyspareunia in post-tubal sterilization syndrome between pomeroy technique and falope ring laparoscopy.

Keywords: Sindrome Post Tubal Sterilization, Pomeroy Technique, Laparoscopy, Falope Ring

Introduction

People in developing countries face the problem of high rates of unplanned and unwanted pregnancies, despite the existence of safe and effective contraception. Although the development of the last decade has caused a decline in fertility in most developing countries by more than 120 million (10-12%) and more than 24% in sub-Saharan Africa, there are still reports of unmet need for contraception. The Millennium Development Goals (MDGs) targets on access to reproductive health reaffirm the need for contraceptive choices and access to reproductive health services, including safe abortion to reduce maternal mortality (MDG 5) and achieve gender equality (MDG 3). [1]

Although the maternal mortality rate is not directly related to the improvement of reproductive health, it can affect the rate of population growth related to the proportion of births in women with high risk of obstetric namely those who are younger than 18 years or older than 34 years, have one or more children of three children, the birth spacing is very close together. As shown in previous studies, increased use of contraception and fertility rate reduction can lower obstetric risk, mainly by reducing pregnancies walkin k desirable in women with high parity. The risk associated with high parity is seen in the ratio of specific maternal mortality. [2]

John Cleland et al, in 2012 assessed the greatest benefits of using contraception to improve the health and survival of women and children stemming from a decrease in the number of pregnancies, especially those at higher risk of the effects of contraception on reproductive demographic features. It is estimated that a 10 percent increase in contraceptive use reduces fertility by 0 , 6 births per woman, decreasing the proportion of 5 percent of all births for women with four or more children with, reducing 1.5 percent births for women aged 35 years or older by, and decrease birth intervals less than 2 years by 3.5 percent. [2]

Despite the high prevalence of contraception, unintentional pregnancy still occurs. This relates to an abortion rate of 18 per 1,000 women of reproductive age and 32 per 1000 for women aged 20-24 years. In England and Wales in 2008, 195-296 abortions were reported. But not all unwanted pregnancies end in abortion; as many as 30% of pregnancies that end in labor even though the pregnancy was not originally planned. [2]

In the 2012 SKDI it is known that the results of the Indonesian population census show that Indonesia's population in 2010 was 237.6 million. This number places Indonesia as the fourth most populous country in the world after the People's Republic of China, India and the United States. Whereas the results of the projection i of the Indonesian population in 2010-2035 show that the population of Indonesia over the next 25 years will continue to increase, from 238.5 million in 2010 to 305.6 million in 2035. [3]

Reproductive as one of human rights, freeing women from the cycle of pregnancy, breastfeeding, and caring for children. The use of contraception provides a major step in gender equality. The advantage of contraception to families with fewer children is to have more resources to invest, and to society is to reduce fertility and population growth for social and economic benefits and to preserve the environment. In addition, contraception spells pregnancy so that it indirectly increases a woman's survival rate for high-risk pregnancies that cause death. [2 , 4]

In its development , there are various methods of contraception used to prevent pregnancy. Tubal sterilization is one of the most commonly used fertility regulation methods in the world. Operative sterilization is a method that is quite popular, easy, safe, and cost-effective and culturally acceptable as a long-term contraception. This sterilization is the second method most often used after oral contraception in the United States. [5 , 6]

Sterilization is the most common pregnancy prevention method in the world with 180 million women sterilizing women and 42 million men doing vasectomy for contraception. Sterilization can be done during cesarean section, termination of pregnancy, or through elective procedures f. Female sterilization prevents pregnancy permanently by blocking or interfering with tubal patency so that the ovum cannot reach the uterus for fertilization. [7,8,9]

Sterilization of women can be done with several methods of surgery such as laparotomy, mini-laparotomy, colpotomy, laparoscopy, and hysteroscopy. The use of laparoscopy as a safe sterilization technique in outpatients contributes greatly to the popularity of laparoscopy compared to laparotomy in gynecology. Besides being safe, laparoscopy is cheaper than Laparatomy, provides better cosmetic results, and allows patients to undergo normal activities early. [6,8,10]

There are several techniques in sterilization, the laparotomy and mini-laparotomy methods including the Pomeroy, Parkland, Irving, Uchida, Aldridge, and Kroener fimbriectomy methods. While the laparoscopic method is electrosurgical technique, Hulka-Clemens Clip, Fischie clip, and falope ring (silastic band). Pomeroy surgery is the most popular and often performed operation for female sterilization. This technique can be performed postpartum, during cesarean section, or at interval sterilization through mini laparotomy. Another popular technique is laparoscopic sterilization with a ring falope, which is also a very effective technique. Depending on how the fallopian tubes are closed, the pregnancy rate within 10 years has a procedure range from 18 from 1,000 women to 37 out of 1,000 women.[11]

Many studies discuss the short and long term consequences of tubal sterilization procedures. Complaints can be in the form of pain during contact, heat in the back of the back, abnormal uterine bleeding, premenstrual pain syndrome, known as Post Tubal Ligation Syndrome (Post Sterilization Syndrome of the Tubes). [12] This complaint originates from impaired blood circulation around the tubes and ovaries, stress on innervation, and intra-pelvic adhesions.[11] The prevalence of the occurrence of post-ligation tubal syndrome itself is still absent, this is due to the inconsistency of many journals discussed in all journals discussing this syndrome. In one journal there were changes in menstrual cycles, but normal hormone levels, whereas in other journals the menstrual cycle length was normal, but hormone levels changed, in other journals there were no significant changes at all. Many journals fail to evaluate the relationship of age, weight, height, parity and contraceptive use, the interval after tubal ligation and the type of sterilization used. The absence of a control group comparable to the case group makes it very difficult to prove this syndrome. The literature says, even if there are women who experience post-tubal ligation syndrome, the numbers are small. [12]

Based on Alvarez's 1989 study, there is evidence to suggest that tubal sterilization is associated with a reduced risk of ovarian cancer, and can increase the risk of menstrual disorders. The mechanism for changing the risk of ovarian cancer and menstrual disorders is still not known with certainty, but Hankinson's study in 1993 suggested that the procedure can cause disruption of blood flow to the ovaries, causing hormonal changes, ovarian dysfunction, and ovarian reduction. Zulfiqar et al. (2013) found 60 out of 300 women experiencing complications after 1 year of tubal ligation. Nicohls et al. (2013) reported that in patients undergoing tubal sterilization ovarian dysfunction can occur which can cause psychological disorders, such as depression, sleep disorders, night sweats, and irritability. [10,11,12,13,14]

Various sterilization techniques have postoperative complications were different- different . The most common method of tubal sterilization in practice today is pomeroy sterilization with cautery, Falope Ring, or titanium clips. Based on data from the Collaborative Review of Sterilization study , bipolar methods, and titanium clips, all methods are comparable in terms of safety and effectiveness, with complications and failure rates <1 percent. [15]

The sterilization technique performed at the Adam Malik Haji Hospital Medan is the Pomeroy sterilization. This technique is done when cesarean section is performed. Parsanezhad et al. (2003) reported that the number of post-sterilization Pomeroy bleeding is increased by 23 , 9 % of the 262 women, and in women receiving sterilization with falope ring as much as 19% of 251 women. Laparoscopic technique with a ring fallopian is performed at the RSUD dr . Pirngadi Medan and at the Mantap Clinic. This technique is done anytime for women who are not pregnant or for patients who have just given birth 6 weeks postpartum. Diaz DS et al, 2014 also reported that women undergoing sterilization with the Yoon Silastic Ring significantly experienced menstrual disorders in the form of increased bleeding, and premenstrual symptoms. [16]

Research on post tubal ligation syndrome has been widely carried out in the world, but studies comparing pomeroy ligation techniques and fallopian ring lapcopy have not been done, especially in Indonesia. Therefore the authors are interested in examining the comparison of post-tubal sterilization syndrome between the Pomeroy technique and the Falope Ring laparoscopy.

Research purposes

General purpose

to find out the comparison of post-tubal sterilization syndrome between the Pomeroy technique and the Falope Ring Laparoscopy.

Special purpose

1. To determine the frequency distribution of patients based on the characteristics of age, parity, duration of tubal sterilization, and mode of delivery
2. To find out the frequency distribution of menstrual disorders in post-tubal sterilization syndrome based on the Pomeroy technique.
3. To determine the frequency distribution of libido and dyspareunia disorders in post tubal sterilization syndrome based on the Falope Ring Laparoscopic technique.
4. To determine the differences in menstrual disorders, libido and dyspareunia in post-tubal sterilization syndrome between the Pomeroy Technique and Falope Ring Laparoscopy.

Benefits of Research

1. This study is expected to be useful to see and obtain comparative data on the incidence of post-tubal sterilization syndrome between the Pomeroy technique and the Falope Ring Laparoscopy.
2. This research is expected to be the basis for the selection of better sterilization techniques
3. This research is expected to be useful for researchers in preparing proposals, carrying out research, and reporting the results according to methodological methods.

Research methods

This study was an observational analytic study using a cross sectional study design. This research was conducted at H. Adam Malik General Hospital Medan, RSUD dr . Pirngadi Medan and Medan MANTAP Clinic. The time of the study begins in January 2019 until the number of samples is reached. Data will be analyzed descriptively to see the frequency distribution of the studied variable.

Discussion

1. Subect Characeristics

Characteristics	Total	
	n	%
Age when sterilied		
<35 years	27	18.0
≥35 years	123	82.0
Parity		
1-2	0	0
3-4	54	36.0
>4	96	64.0
Long time tubal sterilization		
< 6 month	0	0
≥ 6 month	150	100.0

In Table 1 we can see the age group ≥35 years more done sterilization than those aged <35 years (82 , 0 % vs. 18.0%). The highest parity was found in the parity 4 group by 96%. The distance between the patients was carried out by tubal sterilization and filling the research form entirely berjarak 6 months .

Table 2. Differences and Frequency Distribution of Menstrual Disorders in Post-Sterilization Syndrome in Tubes Based on Pomeroy and Laparoscope Techniques

Efect	Sterilisasi Pomeroy		Laparoscopy		Nilai p
	n	%	n	%	
Premenstrual symptomps					
Yes	57	50.9	55	49.1	
No	18	47.4	20	52.6	0.851*
Menstrual cycle (days)					
Permanent	62	49.6	63	50.4	
Reduce	11	52.4	10	47.6	
Increases	2	50.0	2	50.0	0.973**
Long menstrual					
Permanent	61	48.8	64	51.2	
Reduce	2	100.0	0	0.0	
Increases	12	52.2	11	47.8	0.347**
Total pad menstrual day					
Permanent	57	50.0	57	50.0	
Reduce	0	0.0	2	100.0	
Increases	18	52.9	16	47.1	0.347**
Intermenstrual Bleeding					
ya	3	50.0	3	50.0	
No	72	50.0	72	50.0	1.000**
Dismenoreae					
Ya	27	26.6	31	53.4	
No	48	52.2	44	47.8	0.615*

** Chi Square **Fisher exact test*

In table 2 it can be seen that premenstrual syndrome is more common in the group Pomeroy sterilization compared with laparoscopic group, but not significant statistically significant (50 , 9 % vs. 49.1%, p = 0.851). Menstrual cycle and long intervals of menstruation largely unchanged in both study groups (49 , 6 % vs 50.4%, p = 0.973; 48.8% vs 51.2%, p = 0.347). There was no change in the number of pads per day in 50% of study subjects in both groups. Pomeroy sterilization groups often complain that increasing the number pad than the laparoscopic group (52 , 9 % vs. 47.1%) and the complaint number pad is reduced only experienced in the laparoscopic group (100%) but the changes in the number of pads per day is not meaningful statistically significant (p = 0.347). The majority of intermenstrual bleeding and dysmenorrhoea were also not complained of by the two study groups (50% vs 50%, p = 1,000; 52 , 2 % vs 47.8%, p = 0.615).

Table 3. Differences and Frequency Distribution of Libido and Dyspareunia Disorders in Tuba Sterilization Syndrome Based on Pomeroy and Laparoscopic Techniques

Efect	Sterilized Pomeroy		Laparoscopy		Nilai
	n	%	n	%	p
Libido					
Permanent	70	51.5	66	48.5	
Reduce	3	42.9	4	57.1	
Increases	2	28.6	5	71.4	0.462*
Dispareunia					
Yes	5	41.7	7	58.3	
No	70	50.7	68	49.3	0.765*

** Fisher exact test*

In table 3 it can be seen that there was no change in libido in the two groups (51 , 5 % vs 48.5%, p = 0.462). Libido complaints were reduced for the majority in the laparoscopic group compared to the pomeroy group (57.1% vs 42.9%, p = 0.462) while complaints of increased libido were also found more in the laparoscopic group than in the pomeroy-bound group (71.4% vs 28, 6%). Complaints of dyspareunia most dit emukan in the laparoscopic group (58 , 3 % vs 41.7), although the majority is not me complaining about dyspareunia (50.7% vs 49.3%, p = 0.765).

The results of this study found that the characteristics of the study subjects based on the majority age group were at age ≥35 years (82%). The same research results were examined by Kustiyati et al in the study of female sexual function after tubectomy in Surakarta. In that study found age 35-39 years as much as 34% and 40-45 years 66%. Another study conducted by Yasmeen et al in their study titled post tubal ligation syndrome and menstrual disorders after tubal ligation age characteristics found mostly in the age group of 31- 40 years were 53 , 3 %. The same results were also obtained from the study of Yildiz et al. The mean age of performing tubal sterilization was 37.05 ± 4.75. [17,18,19]

According to the Indonesian health care manual, tubectomy is performed if the patient does not want a pregnancy. Because tubectomy is permanent, although tubectomy still has a risk of pregnancy of less than 1 in 100 in 1 year. This is the basis in this study found the age of patients> 35 years, at which age the pregnancy is considered high risk and at that age already have enough children. [19]

Based on parity, the highest yield was found in parity group> 4 (64%). This is consistent with the research of Dias et al. In clinical and physiological repercussion studies of laparoscopic tubal ligation, a mean parity of ± 3.0 (2.0-4.0) was found. The results of other studies that have almost the same results were examined by Kustiyati et al in the study of female sexual function post tubectomy in Surakarta. In that study parity was highest in parity group 3 (50%) and subsequently parity > 3 (30%). [20]

In table 2. it can be seen that menstrual disorders such as: premenstrual syndrome, interruption of cycle intervals, menstrual periods, number of menstruation and intermenstrual bleeding are more common in sterilization using the pomeroy technique but are not statistically significant different (p> 0.05). Majority of dysmenorrhea complaints were not complained in both groups.

Shoebiri et al in the study of menstrual abnormalities after tubal sterilization: a case control study, the results showed menstrual disorders were not significantly different between the tubal ligation groups using minilaparotomy and the control group. Shy et al. In their study stated that the effects of menstrual changes from sterilization depend on age at the time of sterilization. Women who are sterilized at the age of 20-29 years will experience menstrual cycle disruption compared to women who are sterilized over 30 years. The results were equally djumpai on research wilcox et al who found that sterilization at a young age will be more likely to experience irregularities in the menstrual cycle compared to sterilsasi old age. [21]

Parsanezhad et al conducted a study of menstrual disorders and post-tubal sterilization pain: 5 Randomized clinical trials, the results of menstrual disorders were statistically significantly different between the control group and women undergoing unipolar sterilization , the ring and the pomeroy method. The amount of bleeding increased by 28 , 3 % in the unipolar group (p = 0.001), 19.9% in the ring group (p = 0.0001). Menstrual pain was felt up to a maximum of 18 months in the unipolar group (p = 0 , 0001). The sterilization method damages the vascularization relationship in the tube and interferes with the biological exchange of blood flow between the uterus and ovaries, making it more likely to cause menstrual abnormalities. [22]

Sterilization is hypothesized to cause abnormalities by affecting ovarian function. Even so, laboratory results comparing women before and after sterilization were found to have no consistent disruption in ovarian function. Tubal occlusion was hypothesized to be able to disrupt ovarian blood supply. Although the uterine artery branches, which are often occluded during sterilization, are connected to the ovarian branches by the ovarian arteries are not affected by sterilization because the branches are direct from the aorta and isolated from the occlusion site. Tubal occlusion may cause increased pressure on the utero-ovarian arterial loop, thereby damaging the ovaries. However, none of the studies found menstrual changes 2 years after sterilization, and acute damage to the ovaries did not interfere with hormonal status for several years. [19]

In table 3. it can be seen that sexual disorders assessed by complaints of majority libido and dyspareunia also have no complaints. Complaints of decreased or increased libido were more frequent in the sterilization group using laparoscopic ring fallopian, but not statistically meaningful (P> 0 , 05) Yilzid et al., In his study that assessed the effects of tubal sterilization on sexuality in women. Tubal sterilization group 74% used pomeroy sterilization laparotomy and 24% used bipolar coagulation laparoscopy. The result was that sexual dysfunction was experienced in 82% in the tubal sterilization group and was statistically significant compared to controls who did not undergo sterilization (p <0.001). When analyzing risk factors in 200 cases of sexual dysfunction , age , smoking status, alcohol use, body mass index and education level and occupational status did not affect the risk (p> 0.05). The risk of sexual dysfunction increases in the low income group, has more than two children, marital status who experience divorce. [17]

Similar results were obtained from the study of Dias et al., Sexual experience after sterilization did not change in 53% of study subjects, the increase and decrease in sexual numbers was almost the same (23% vs 24%) the percentage of dyspareunia also did not change after tubal ligation (p = 0.001). In the literature reported an increase in sexual satisfaction of 6-55% and a decrease of 0-7%. But the results suggest that a significant decrease in intercostal numbers per week, such as decreased libido, and more pronounced changes in women who experience tubal ligation than those who undergo bipolar electrocoagulation. Other studies show the incidence of decreased libido in 2-5% of cases and an increase in 21-25%. [20]

Costello et al., Who found 805 of 4567 women participating in the CREST study reported that changes in sex, positive effects such as increased sexual desire and sexual satisfaction were reported 10 and 15 times higher. [23] Wa laupun post tubal ligation effect terha dap female sexuality did not differ significantly, but seceara Klin is there are some patients who experience a change. The positive effects can be caused from the loss of fear will be unwanted pregnancies, and also the effect of the side of contraceptive methods more. While negative effects arise from a sense of loss of reproductive ability . This can also be influenced by women 's perception of women who regard sexual relations as the goal of procreation and not recreation. [24]

Tubal ligation is chosen if there is a strong desire for effective contraception in family planning. Operative action is believed to be more effective than some other reversible procedures that have the same effectiveness . The relationship between clinical outcomes after tubal ligation experienced by women does not need special treatment. No contraception can be 100 percent successful and without complications. Therefore, the choice of contraception remains adjusted to the wishes and choices of the patient. Our job as health care providers is to provide clear education about the benefits, advantages and disadvantages of each contraceptive.

Conclusion

Based on the characteristics of the research subjects found the most age groups at age ≥35 years, the most parity at> 4, and all have been done tubal sterilization ≥ 6 months Menstrual disorders such as premenstrual syndrome are more common in the pomeroy sterilization group compared with the laparoscopic group. Menstrual cycle intervals, menstrual length and number of bleeding per day were not significant differences in the two study groups. Intermenstrual bleeding and dysmenorrhoea were also not significant differences in the two groups. Clinically, changes in libido and dyspareunia are more common in the laparoscopic group, although not statistically significant. There were no statistically significant differences in menstrual disorders, libido, and dyspareunia in post-tubal sterilization syndrome between pomeroy technique and falope ring laparoscopy.

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