

eISSN : 2579-8324

pISSN : 2579-8323

Alamat Korespondensi:

Ruang Redaksi Andalas Obstetrics and Gynecology Journal, Lantai 3 PPDS Obstetri dan Ginekologi Universitas Andalas, RSUP DR. M. Djamil Padang, Jl. Perintis Kemerdekaan Padang, Sumatera Barat 25127

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RESEARCH

Comparison of Pain Scale in Patients with Endometriosis Cysts and Adenomyosis Before Surgery, After Surgery and After Giving Analog GnRH

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Abstract

Background: Endometriosis is the growth of the epithelium and endometrial glands outside the uterine cavity. In endometriosis there is a process of neurogenesis and angiogenesis. The degree of endometriosis pain depends on the depth of endometrial implant infiltration in nerve fibers and / or neurogenesis. Operative action and postoperative hormone therapy are the main choices for preventing recurrence and reducing pain complaints.

Purpose: to determine the comparison of pain scales of patients with endometriosis before surgery, after surgery and after administration of GnRH analogues.

Method: This study was an observational analytic with a retrospective cohort design in the Obstetrics and Gynecology Clinic of RSUP Dr. M. Djamil Padang in June 2017 to January 2018. The sample size were of 35 people with inclusion and exclusion criteria. The inclusion criteria were the diagnosis of endometriosis (endometriosis cysts and adenomyosis) from ultrasonography and anatomical pathology, had surgery and received analogue GnRH injection three times. Exclusion criteria were not proven endometriosis, hysterectomy surgery, using analgesics and not following analogue GnRH injection procedures. The pain scale is assessed by the Wong-Baker Faces Pain Rating Scale. The pain scale is assessed during menstruation before surgery, first menstruation after surgery and first menstruation after three analogues of GnRH injections. Data analysis using SPSS version 22, where univariate analysis is used to see the characteristics of respondents and bivariate analysis using Wilcoxon Test. Statistical test results were significant if $p < 0.05$.

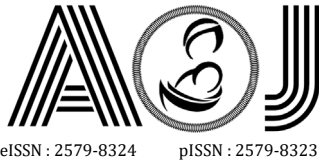
Result: Based on the Wilcoxon statistical test results obtained p value = 0.0001 (p value < 0.05) which can be concluded that there is a significant reduction in the pain of endometriosis of patients after surgery compared to before surgery.

Conclusion: There was a significant decrease in pain in endometriosis patients before surgery.

Keywords: Endometriosis, Adenomyosis, Pain Scale, GnRH anaologist

INTRODUCTION

Endometriosis is a common benign gynecological disease characterized by endometrial and stromal glandular tissue outside the normal location (uterine cavity). Endometriosis can be



eISSN : 2579-8324

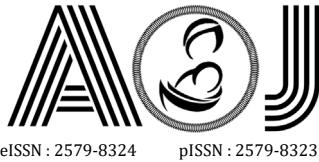
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found anywhere but is most often found in the pelvic cavity, ovary, uterosacral ligament and douglas cavity.¹ In the early stages, endometriosis is often asymptomatic and the main method of diagnosis is direct visualization either by laparotomy or laparoscopy. Investigations by imaging either ultrasound, CT-scan or MRI have a low sensitivity for diagnosis.² About 2-50% of patients with endometriosis are asymptomatic. The most common symptoms that women complain of endometriosis are dysmenorrhoea, dyspareunia, chronic pelvic pain and infertility. 40-60% of people with endometriosis complain of dysmenorrhoea, 20-30% with infertility. Classification of the degree of endometriosis using laparoscopy was issued by The American Society of Reproductive Medicine. However, studies have found that the severity of symptoms is not directly proportional to the degree of endometriosis.³ In theory, endometriosis pain arises because of the inflammatory process, the formation of new nerve fibers at the site of endometrial implantation, endometrial implants in certain locations and hypersensitisation of endometritis patients. This endometriosis pain will affect a woman's life because it interferes with work activities and productivity. Women with endometriosis are absent when working, thereby reducing productivity However, studies have found that the severity of symptoms is not directly proportional to the degree of endometriosis.³ In theory, endometriosis pain arises because of the inflammatory process, the formation of new nerve fibers at the site of endometrial implantation, endometrial implants in certain locations and hypersensitisation of endometritis patients. This endometriosis pain will affect a woman's life because it interferes with work activities and productivity. Women with endometriosis are absent when working, thereby reducing productivity However, studies have found that the severity of symptoms is not directly proportional to the degree of endometriosis.³ In theory, endometriosis pain arises because of the inflammatory process, the formation of new nerve fibers at the site of endometrial implantation, endometrial implants in certain locations and hypersensitisation of endometritis patients. This endometriosis pain will affect a woman's life because it interferes with work activities and productivity. Women with endometriosis are absent when working, thereby reducing productivity This endometriosis pain will affect a woman's life because it interferes with work activities and productivity. Women with endometriosis are absent when working, thereby reducing productivity it works. Severe or medium-term pain with moderate intensity will affect not only the physical health but also the mental health of the patient.² Hormonal preparations such as GnRH analog can be used in medicine and function by suppressing ovarian and menstrual activity and making implant endometriosis atrophy even though the degree of atrophy varies. Endometriosis surgery aims to remove the entire area of endometriosis, freeing adhesions and restoring normal anatomical structures. Laparoscopy is the gold standard of endometriosis surgery.⁴



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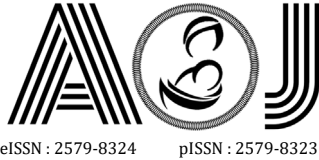
Due to the severity of pain morbidity caused by endometriosis, the availability of analogue GnRH therapy and the many actions of laparotomy and operative laparoscopy at RSUP Dr. M. Djamil Padang, the authors are interested in researching the comparison of the pain scale of endometriosis patients before surgery, after surgery and after administration of analogue GnRH injection. This study was appointed to obtain a picture of the effectiveness of each therapy for patient pain complaints.

METHOD

This research was conducted a retrospective cohort design method. The research was conducted at the Obstetrics and Gynecology Polyclinic of Dr. RSUP M. Djamil Padang, from October 2017 to January 2018. The number of samples needed was 35 people who met the inclusion and exclusion criteria. Sampling was done by consecutive sampling. Endometriosis patients included in the sample were patients with massive adenomyosis and stage 3-4 cyst endometriosis. Massive adenomyosis and stage 3-4 cyst endometriosis are diagnosed with ultrasound which is then reconfirmed from the results of the pathology examination of the anatomy of the tissue resulting from surgery. The operation performed on massive adenomyosis patients is adenomyosis resection laparotomy. Operations performed on patients with stage 3-4 cyst endometriosis are laparoscopic cystectomy and marsupialisation. All operations were carried out at the Dr. M. Djamil Padang by a doctor Obgin Endocrine and Reproductive Fertility Consultant (FER).

After surgery, patients get an analogue GnRH injection. GnRH analog preparations used were Tapros at a dose of 3.75 mg intramuscular. Patients were given tapros injection for 1 time a month for 3 months at the RSUP Dr. M. Djamil Padang. The injection was administered by an Obgin resident who was undergoing a FER subsection. The pain scale was assessed using the Visual Analog Scale from the Wong-Baker Faces Pain Rating Scale. The pain scale is rated from 1 to 10. This scale is used because it has become an international standard and is often used in medical research to measure a person's pain level.

Patient's pain was assessed on the first or second day of menstruation where the patient came to the midwifery clinic at Dr. M Djamil Padang Hospital. The patient is then assessed in a polyclinic with a calm atmosphere, alone and without consuming analgesics before. Initially the researcher observed the patient's facial expression and assessed the pain scale, then the patient was shown a pain scale Wong-Baker Faces Pain Rating Scale and was asked to show his pain scale with a value of 0 meaning there was no pain at all up to a value of 10 indicating the worst pain. Pain can also be described by the activity tolerance scale, where the pain scale is expressed by patients with a scale of numbers from 0 to 10. Scale 0 means no pain at all, 2 means mild pain that can be ignored, 4 means moderate pain that can be reduced while doing activities, 6 means moderate pain which is only reduced by



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concentration, 8 means severe pain that makes the patient can only do basic needs and 10 means severe pain where the patient can only lie in bed. Pain with a tolerance scale of this activity is used to help patients assess their pain with the Wong-Baker Faces Pain Rating Scale.

The first pain assessment is done when the patient is menstruating before surgery. Patients are asked to assess the level of pain that is most often felt during menstruation. The second pain assessment is done when the patient experiences the first menstruation immediately after surgery. A third pain assessment is performed when the patient gets the first menstruation after completing three times the injection of analog GnRH (tapros). Patients are asked to distinguish between pain before surgery and after surgery, is there a difference. After the three pain scale data have been collected, data analysis is performed. Data analysis using SPSS version 22. The methodology used is the Wilcoxon Test. Statistical test results were significant if $p < 0.05$.

RESULTS

Table 1. Characteristics of study samples

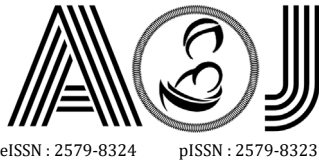
Characteristics	Median (min-max)
Age	31 (17 - 41)
Pain before surgery	8 (4-10)
Pain after surgery	3 (0-10)
Pain after surgery + GnRH	1 (0-10)

Based on the characteristics of the research sample. From table 1 above, it can be seen that the age range of the study sample is 17 years to 41 years with an average age of 31 years (reproductive and productive ages). From the pain scale data before surgery, it was obtained that the sample complained about the pain scale from the lightest 4 to the heaviest 10, the average pain scale sample before surgery 8. For pain scales assessed after surgery, ranges from 0 to 10 with a mean pain scale 3. For samples that have been operated on and received GnRH injections, the pain scale is obtained from a range of 1 to 10 with a mean of 0.

Table 2. Comparison of pain scale of endometriosis patients after surgery compared with pain before surgery

	After surgery without GnRH (mean \pm SD)	After surgery with GnRH (mean \pm SD)	p value
Pain scale	2.69 \pm 2.423	1.43 \pm 2,200	0,0001

Based on the results of Wilcoxon's statistical tests regarding the ratio of pain after surgery versus pain before surgery, in table 2 the p value = 0.0001 (p value < 0.05) can be concluded that there is a significant decrease in pain in endometriosis patients after surgery compared to before surgery. This means that cystectomy surgery performed on



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endometriosis cyst patients and resection of adenomyosis patients significantly reduces the patient's pain scale.

Table 3. Comparison of pain scales for endometriosis patients after surgery plus three analog GnRH injections compared after surgery without GnRH analogues

	Before surgery (mean \pm SD)	After surgery (mean \pm SD)	p value
Pain scale	7.66 \pm 2.428	2.69 \pm 2.423	0,0001

From table 3 regarding the ratio of pain after surgery compared to pain before surgery it is found that the value of $p = 0.0001$ (p value < 0.05), it can be concluded that there is a significant decrease in pain scale of endometriosis patients after surgery plus three times GnRH injection compared to after surgery without GnRH injection. This can be interpreted that the administration of GnRH analog preparations after surgery has a better effect on reducing pain in endometriosis patients than surgery alone.

DISCUSSION

Endometriosis is a disease characterized by the growth of endometrial tissue outside the endometrial cavity. Endometrial tissue can be found anywhere in the abdominal cavity. Endometriosis in the ovary can cause a buildup of thick, dark colored endometriosis, mixed with old blood and debris, known as endometrioma or brown cyst or endometriosis cyst. Endometriosis in the myometrium is known as adenomyosis.

Endometriosis cysts occur in 8-32% of women with endometriosis, pain complaints occur in 10-40% in cases of endometriosis cysts. Risk factors and the emergence of pain complaints are continuously evaluated by researchers to improve the quality of therapy before and after surgery.⁷ Sampson's theory is the most widely held theory, explained that endometrial tissue passes through the fallopian tube due to retrograde menstruation, this results in the emergence of intra-abdominal implants. Endometrial implants cause symptoms by disrupting normal tissue, causing adhesions and fibrosis as well as severe inflammatory reactions. Endometriosis implants can vary both in terms of size, texture and appearance. Endometriosis can look like brown spots like burning, blue like Mulberries or Raspberries.

The classic symptoms of endometriosis are dysmenorrhoea, dyspareunia, dyschezia and or infertility. 83% of women with endometriosis complain of one or more of these symptoms. Menstrual pain (62%) and chronic pelvic pain (57%) are the most common complaints of patients. Pain varies and depends on the site of endometriosis. Dyspareunia is associated with deep infiltration of endometrial lesions in the douglas cavity or uterosacral ligament.² The definitive diagnostic of endometriosis is by direct visualization of either laparoscopy or laparotomy. Peritoneal biopsy is recommended for histological confirmation of diagnosis. After endometriosis diagnosis is confirmed, the anatomic location and distribution of

endometriosis can be used to determine the endometriosis category, whether minimal, mild, moderate or severe. Endometriosis classification issued by The FOATlaRVS (Foci-Ovarian endometrioama-Adhesion-Tubal endometriosis Inflammation-adenomyosis-Recto Vaginal Space endometriosis). This classification is based on location, depth, diameter of lesions and adhesions.⁸

According to the International Association for the Study of Pain (IASP), pain is an unpleasant sensory and emotional experience, which results from actual or potential tissue damage, or describes the condition of the damage. Chronic pain is usually defined as pain that has a duration of 6 months or more.² Pain can be divided into acute and chronic. Acute pain usually occurs within a few seconds to 6 months, whereas chronic pain lasts for 6 months or more related to tissue damage.²

Clinical pain assessment is done in 2 ways namely single and multidimensional dimensions. Pain assessment by means of a single dimension can be in the form of Visual Analog Scale (VAS), verbal numerical scale and verbal scale. Multidimensional pain assessment is a way to assess the level of pain experienced by patients and other aspects such as behavior and emotions. The multidimensional way uses pain diaries, pain drawings, facial pain scales, Winconsin short pain questionnaire and McGill pain pain questionnaire.²

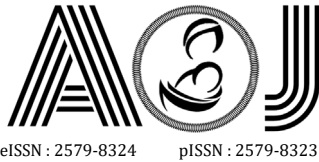
The pain scale used in this study is the Wong-Baker FACES Pain Rating Scale. Where pain scale is expressed by patients with a scale of numbers from 0 to 10. Scale 0 means no pain at all, 2 means mild pain that can be ignored, 4 means moderate pain that can be reduced during activities, 6 means moderate pain that only decreases with concentrate, 8 means severe pain that makes the patient can only do basic needs and 10 means severe pain where the patient can only lie in bed. This pain scale also uses facial expressions in its assessment as shown below



Figure 1. Wong-Baker FACES Pain Rating Scale⁵

From our research by comparing the pain scale of endometriosis patients before surgery and after surgery, the results of laparoscopic cystectomy surgery marsupialisation of endometriosis cysts and adenomyosis resection can significantly reduce the pain scale of patients. This is consistent with the theory and previous studies.

VAS is the most widely used method to assess the degree of pain. This linear scale visually illustrates the level of pain experienced by patients. The range of pain is represented



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by a line 10 cm long with a sign in the form of numbers and descriptive statements on each side

Based on the International Association for the Study of Pain (IASP), that daily pain should be measured for at least one month before therapy to get an adequate baseline measurement of pain and be measured at the same time every day. Dysmenorrhoea and pelvic pain must be measured separately using an 11-point numerical ratio scale (ranging from 0 to 10), as is the case with other chronic pain conditions.²

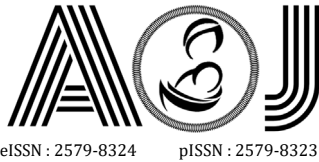
The use of VAS scores was chosen because VAS is the right instrument and has been well applied to measure pain associated with endometriosis. VAS is a psychometric response scale using a questionnaire and is a simple method consisting of a 10 cm flat line, starting with 0 which indicates no pain, while the number 10 is the worst pain ever experienced.¹¹

There are several biological mechanisms that cause pain sensations, namely nociceptive, inflammatory, neuropathy, psychogenic or mixed. Nociceptive pain starts when there is a stimulus that induces this pathway, where the stimulus will be transduced into biochemical signals transmitted to the central nervous system (CNS). In the CNS there will be modulation that can increase or decrease the intensity of the pain. Furthermore, in the cerebral cortex will be formed a perception of pain. nociceptive pain can be either somatic or visceral. Some important things about visceral pain are that not all visceral organs can be a source of pain, have indefinite borders, are not always related to dysfunction and can be related to somatic pain and referred pain.¹²

Inflammation is one of the mechanisms that cause visceral pain. Endometriosis is considered a pelvic inflammatory process that produces a significant inflammatory response, so many hypotheses of endometriosis pain are associated with the inflammatory process. The concentration of TNF- μ in the peritoneal fluid in women with endometriosis is higher than in normal women. TNF will stimulate prostaglandin synthase-2 excretion which will increase PGE2 and PGF2 μ production. Interleukins 1, 6 and 8 are also found to be elevated in peritoneal fluid in endometriosis patients. Interleukin 1 induces prostaglandin synthesis and also stimulates proliferation of fibroblasts which can contribute to adhesions and fibrosis in endometriosis. Interleukin 8 is a cytokine that is angiogenic and proinflammatory.¹²

Nerve growth factor (NGF) expression is also found to be increased in endometriosis lesions. NGF will increase the density of nociceptors, increase sensory neurons and also increase the expression of P substans which are neuropeptides involved in pain modulation.¹²

Several studies have shown the growth of new nerve fibers (neurogenesis) in ectopic implants which is thought to be one of the mechanisms causing pain.¹³ Increased nerve fiber density in peritoneal endometriosis lesions is 6 times compared to women without endometriosis. Nearly all nerve fibers close to endometriosis lesions are non-encapsulated nerve fibers.¹⁵ Although not significant, the number of peritoneal nerve fibers in



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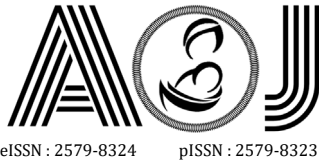
endometriosis women is greater compared to women without endometriosis. Perineural and endoneural invasion based on myelin muscle fibers that appear and are often not encapsulated in nodular fibrosis.¹²

Apart from the peripheral mechanism as explained above, there are some thoughts about the central mechanism in the emergence of pain related to endometriosis. Hyperexcitability of the nociceptive system and amplification of pain perception can be found in patients with chronic pain. A study comparing the pain intensity of patients proven to be endometriosis with normal women got a higher VAS rate than normal women on the same pain stimulus. This leads to the possibility of sensitization in women with endometriosis. Changes in the structure of the area associated with modulation and pain perception can be found in patients with chronic pain. In another study assessing brain morphology with MRI in patients with chronic pelvic pain due to endometriosis or without endometriosis. There is a decrease in gray-matter volume in the brain area of women with chronic pelvic pain due to endometriosis or without endometriosis. This finding is in line with several previous studies in chronic pain patients who found a reduction in gray matter in the area of the pain system (thalamus, insular cortex) and areas involved in pain modulation (prefrontal cortex). These structural changes can play a role in the perception of pain that continues even though the source of nociceptive has been removed insular cortex) and the area involved in pain modulation (prefrontal cortex). These structural changes can play a role in the perception of pain that continues even though the source of nociceptive has been removed insular cortex) and the area involved in pain modulation (prefrontal cortex). These structural changes can play a role in the perception of pain that continues even though the source of nociceptive has been removed.²

Types of pain in endometriosis can be pain during menstruation, pain during sexual intercourse (dyspareunia), pain during urination (dysuria), pain during bowel movements (dischezia), pelvic pain and lower abdominal pain. Women with endometriosis report more frequent complaints of throbbing pain, spreading to the feet and pain that feels undermined. In addition, patients with endometriosis also complain of pain in the rectum and stomach sensation pulled down. The intensity of pain in endometriosis is not different from pain caused by other disorders. However, there are differences in pain intensity in women with severe and mild endometriosis. In women with severe endometriosis, dyschezia is more common than in mild endometriosis.¹³

Areas of pain in endometriosis cannot be distinguished from areas of pain caused by other disorders. However, in patients with endometriosis, the average complains of pain in the abdominal area are suprapubic, umbilicus, right and left iliacs and sacrum.¹³

Endometriosis can occur in various forms in the pelvis, such as clear vesicles, bright red lesions, dark pigmented lesions with hemodiserin and white scars, which can contribute to



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pain through different mechanisms. Generally, there is no definite relationship between symptoms and disease progression, location and type of endometriosis that can affect pelvic pain¹⁴

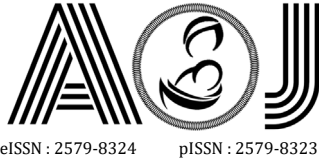
The type of lesion will determine pain. dysmenorrhoea is more consistent with the type of deep insertion lesions, while endometrioma rarely causes pain. Adamson stated the difficulty of determining the degree of endometriosis from the severity of pain. the size of the lesion determines the level of pain in the deep insertion lesion. No correlation was found between the degree of endometriosis (from several classifications) and the level of pain.¹⁴

Keep in mind various forms of endometriosis, namely endometriosis peritoneum (superficial), endometriosis cysts (endometrioma) and deep endometriosis (deep insertion lesions). The location of the endometriosis lesion will affect the clinical symptoms that appear in the patient. Deep implant endometriosis in the posterior pelvis is related to the severity of dyschezia compared to women without deep implant endometriosis. Lesions in the rectovaginal septum are associated with symptoms of dyschezia and dysperunia.¹⁵ There is a strong association between lesions in the douglas cavity and dyspareunia. The correlation between stage and severity of symptoms is only found in dysmenorrhoea symptoms. However, the association between staging and severity of symptoms is only marginal and inconsistent.¹⁴

Endometriosis is considered an estrogen-dependent disease, so one of the treatment options is to suppress hormones using drugs. GnRH agonist is a type of drug that is often used in the treatment of endometriosis medical. This drug is used with consideration of patient preferences, cost, side effects and availability. This drug therapy creates a pseudopregnancy condition by suppressing ovulation and menstruation.¹⁶

Hormonal therapy suppresses follicle stimulating hormone (FSH) and luteinizing hormone (LH). As a result, the ovary does not produce estrogen, thereby reducing stimulation of endometriosis implants and ultimately reducing the size of the implant and preventing the growth of new implants. reduced sensitivity of the pituitary gland. This condition will result in hypogonadotropin hypogonadism which will affect existing endometriosis lesions. Amenorrhoea arising from this condition will prevent the formation of new lesions. GnRH will also increase apoptosis of endometriosis. In addition, GnRH works directly on endometriosis tissue. This is evidenced by the presence of GnRH receptors in the ectopic endometrium. Estrogen receptor mRNA (ER α) levels decrease in endometriosis after long-term therapy. GnRH also reduces VEGF which is an angiogenic factor that has a role in maintaining growth of endometriosis. Interleukin 1A (IL-1A) is an immunological factor that acts to protect cells from apoptosis.¹⁸

Brown et al in 2010 compared the administration of GnRH analogs in treating endometriosis-related pain. The results show that GnRH analogues are more effective than



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placebo, but not better when compared with LNG-IUS or oral danazol.¹⁹

Because the effect of GnRH analog is hypoestrogenic, it is necessary to provide estrogen as an add back therapy. This is based on the level of estrogen needed to protect bones, cognitive function and other symptoms of estrogen deficiency is lower than the level that will activate endometriosis tissue. Various studies have shown that this add back therapy does not reduce the effectiveness of GnRH analogues.¹⁵ In the administration of GnRH analogous to the add back estrogen and progesterone therapy for 6 months, bone mineral density is higher compared to GnRH alone.¹⁹

Doctors can use GnRH analogues (nafarelin, leuprolid / leuprorelin, busorelin, gosorelin or tryptorelin) as an option in reducing pain due to endometriosis.² Women with advanced endometriosis, endometrioma and infertility should undergo surgery. Endometriosis surgery can be divided into conservative surgery and definitive surgery. Conservative surgery is performed by laparoscopy, cautery or excision of all visualized endometriosis implants. Endometrioma is recommended to undergo a perlaparoscopic cystectomy leaving as few cyst walls as possible. With conservative therapy, the uterus and ovaries are left behind. In definitive surgery, bilateral hysterectomy and salphingoophorectomy are performed, adhesiolysis and removal of all visualized endometriosis lesions.²⁰

From our research by comparing endometriosis patients' pain scales after surgery plus 3 times the administration of analog GnRH compared to after surgery without giving analogue GnRH, the results showed a significant difference in the decrease in the patient's pain scale. This is consistent with the theory and previous studies.

Hysterectomy is the only definitive therapy for adenomyosis. Before surgery an accurate diagnosis must be made to distinguish adenomyosis from myoma uteri in order to avoid myomectomy surgery plans that end in hysterectomy.

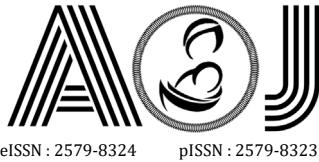
Characteristics of Respondents

1. Age range

From the results of univariate analysis it can be seen the characteristics of the study sample. The age range of the youngest study sample is 17 years to the oldest 41 years with an average age of 31 years. The sample age and the mean are in accordance with the theory that endometriosis occurs in women of reproductive age and has the potential to disrupt productivity.

2. Pain scale before surgery

From the assessment of the pain scale before surgery, 35 samples were obtained complaining of the mildest pain on a scale of 4 to the heaviest 10. There were 4 samples complaining of pain on a scale of 4, 9 samples complaining of pain on a scale of 6, 11 samples



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complaining of pain scale 8 and 11 samples complain of pain scale 10. There is no pain-free sample.

From the above data it appears that the majority of samples complained of severe pain on a scale of 8-10. Pain with this scale makes the sample feel disturbed in everyday life and makes it unproductive. The pain scale can more or less reflect the severity of massive-sized adenomyosis and grade II- endometriosis cysts IV. In some studies the degree of endometriosis is sometimes not in line with the severity of pain, in this study can be seen similar results where there are 4 samples that only complained of pain on a scale of 4 and 9 samples that complained of pain on a scale of 6.

The average pain sample before surgery is on a scale of 8. From these data it can be seen that the variation of pain caused by endometriosis varies, from pain on a scale of 4 which means the patient has moderate pain that can be reduced while performing activities up to a scale of 10 which means the patient has severe pain where the patient can only lie in bed because of pain. The mean pain scale of the patient 8 means that the patient has severe pain which makes the patient can only perform basic needs such as bowel movements, urination and eating, the rest of the patient lying in bed with pain.

3. Pain scale after surgery

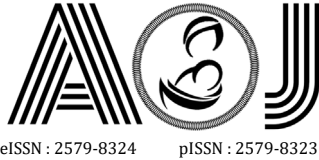
In this study there were 22 samples (62.9%) felt less pain after surgery than before surgery, there were even 10 samples whose pain disappeared completely with a pain scale of 0 (28.6%), while the remaining 3 samples (8.6 %) explained that the pain was not reduced compared to before the operation. Although some samples still complained that there was no improvement after surgery, the majority of the sample (28.6% + 62.9% = 91.5%) felt improvement after surgery.

The mean pain scale in this group is 3 which means the sample feels mild pain. When compared with the average group before surgery, there was a decrease of 8 compared to 3. This is in accordance with the theory and the results of previous studies which mentioned that surgery provides a decrease in patient pain.

4. Pain scale after surgery plus analogue GnRH injection

For samples that had undergone surgery and received a GnRH injection, the pain scale was obtained in the range of 0 to 10 with a mean of 0. In this study, 17 samples (48.6%) felt less pain after surgery plus analogue GnRH injection compared after surgery without analogous GnRH . 10 samples whose pain scale was 0 after surgery remained pain-free (scale 0) after administration of analog GnRH. There are 8 samples that provide information that the pain is not reduced compared to before giving analog GnRH.

From the above data it can be said that the majority of patients who received analogue



eISSN : 2579-8324

pISSN : 2579-8323

Alamat Korespondensi:

Ruang Redaksi Andalas Obstetrics and Gynecology Journal, Lantai 3 PPDS Obstetri dan Ginekologi Universitas Andalas, RSUP DR. M. Djamil Padang, Jl. Perintis Kemerdekaan Padang, Sumatera Barat 25127

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GnRH injections after surgery experienced pain relief and none experienced worsening. The average pain scale in this group is 1 which means the sample feels mild pain. When compared with the average group before surgery, there was a decrease of 3 compared to 1. This is in accordance with the theory and the results of previous studies which stated that the administration of analog GnRH gives a decrease in pain relief of patients.

CONCLUSION

Operative action in cases of endometriosis significantly reduces the pain scale of the patient. GnRH analog preparations in endometriosis patients after surgery significantly reduce the patient's pain scale

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eISSN : 2579-8324

pISSN : 2579-8323

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