Are gonadotropin-releasing hormone analogs and laparoscopic ablation equally effective treatments for endometriosis?

Rachel Baker* PA-S, Patricia Bunton, MS, PA-C

Abstract. Although both laparoscopic ablation and gonadotropin-releasing hormone analogs (GnRHa) are treatments for endometriosis, there are no studies that directly compare these two treatment options. METHODS: This study compares the use of GnRHa therapy and laparoscopic ablation concerning symptom relief, recurrence of symptoms, safety, side effects of treatment and improvement of quality of life in women ages 18-50 with diagnosed endometriosis. The study design is an evidence-based literature review, assessing each study for its research design, inclusion and exclusion criteria, treatment results, adverse affects and conclusions. RESULTS: All but one research study showed that GnRHa are effective at improving quality of life by relieving endometriosis symptoms up to one year post treatment. Side effects were consistent with hypoestrogenemia and were non-life threatening. Laparoscopic ablation was found to successfully treat endometriosis symptoms, but fertility rates were not consistently improved. Adhesion formation, infection and organ injury were complications of surgery, but were low in incidence. CONCLUSIONS: There are many factors that are necessary to consider when determining the most appropriate therapy. Both GnRHa and laparoscopic ablation are safe, reduce symptoms and improve the overall quality of life, therefore more research is needed in order to determine specific parameters for each treatment.

1. Introduction.

Endometriosis is a disease of the female reproductive system in which endometrial tissue exists outside of the uterus and is found attached to other organs, predominantly in the peritoneal space [1]. Approximately 10 to 25 percent of women in the United States of reproductive age endure this disease, and the prevalence is 3 to 4 times greater in infertile women than in fertile women [1,2]. Endometrial tissue implants respond to the normal hormonal stimulation of the menstrual cycle, thus cycling through thickening, shedding, and bleeding phases along with the uterine tissue [2]. Common symptoms include dysmenorrhea, dyspareunia, rectal bleeding, infertility, severe abdominal cramping, and low back pain prior to or during menses [2,3]. Endometriosis is suspected secondary to history and physical findings, but laparoscopic visualization of endometrial implants outside of the uterus is diagnostic. Laparoscopic ablation is a surgical treatment option that has been available for years and is the preferred treatment in clinical practice for infertile patients or patients with progressed stages of endometriosis [3]. Another treatment option that is utilized and continually studied is the use of gonadotropin-releasing hormone analogs (GnRHa) in patients with endometriosis. Examples of GnRHa drugs includes Nafarelin, Leuprolide Acetate, Danazol, DMPA and Goserelin [4-7]. Considering the prevalence of endometriosis and the disabling pain and suffering it causes, comparing the safety and efficacy of GnRHa therapy and laparoscopic ablation of endometrial implants will provide additional information for utilizing these treatment options in patients with endometriosis. Through a systemic review of evidence-based literature, symptom relief, recurrence of symptoms, safety, side effects and overall improvement of quality of life were compared in GnRHa therapy and laparoscopic ablation in women ages 18-50 with diagnosed endometriosis.

2. Results

Of the 14 clinical trials for GnRHa included in this research, each one shows Naferelin, Danazol, Leuprolide Acetate, DMPA and Goserelin [4-7]. One study found that there was a temporary increase in pain and decrease in quality of life for the first month when treated with Leuprolide acetate [12]. In a study comparing fertility one year after treatment, live pregnancies were 50% and 40% in the Leuprolide Acetate and Danazol treatment groups.
respectively in previously infertile women [7]. Side effects with GnRHa use were non-life threatening, hypoestrogenic and included mood changes, hot flashes, decreased bone mineral density, vaginal bleeding, spotting or dryness, mild depression and headache [8-11]. Recurrence of symptoms after GnRHa treatment is high (approx. 50%) because it only suppresses ovarian function throughout treatment [3]. Laparoscopic ablation (LA) did not show a significant improvement in pregnancy rates when compared to no treatment in two separate studies, however, symptoms improved up to one year post surgery [13,14]. As for symptom and disease recurrence, one study indicated 12 of 14 patients experienced significant reduction or disappearance of symptoms and repeat laparoscopy showed no re-implantation of endometrial tissue post LA [15]. Five studies were excluded because they either addressed excision rather than ablation, chocolate cysts instead of endometrial implants, or the surgical procedure performed was unclear. Low-incidence complications of laparoscopic surgery included adhesion formation, bowel or ureteral injury, infection and death. While these complications are not reported in this study, a previous evidenced-based study concerning endometriosis found that they do, in fact, occur on rare occasion [15].

3. Conclusions

Therapy for endometriosis is dependent on multiple factors including the patient’s level of pain and discomfort, improvement of symptoms with treatment, incidence of symptom recurrence, ability and desire to conceive and side effects/complications of treatment. To determine and recommend the most effective and beneficial treatment for each individual patient, all of these factors should be evaluated and considered. Therefore, being aware of the medical evidence concerning various approaches to medical treatment is essential to successfully treat patients. The difficulty associated with assessing the effectiveness of endometriosis treatment is heavily dependent on the fact that researchers rely on the symptom responses of the clinical subjects. Characteristics of pain and alleviation of symptoms are purely subjective and immeasurable by the researcher. An additional limitation is the lack of clinical studies that address either GnRHa therapy or laparoscopic ablation using similar criterion and measured parameters. For example, fertility is rarely addressed in GnRHa research because it produces a pseudo-menopausal state and therefore prevents pregnancy, and laparoscopic ablation is rarely addressed in research alone as a treatment but is commonly found in conjunction with excision and/or medical management. This evidence-based review shows that both GnRHa and laparoscopic ablation are safe, reduce symptoms and improve the overall quality of life; however, the quality of symptoms, extent of endometriosis determined laparoscopically, age of patient and patient preference are important factors in the decision concerning the type of treatment utilized on an individual basis. More clinical research is needed in order to determine specific parameters for each treatment.