

# Clinical Effectiveness of Dienogest in the Treatment of Endometriosis

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**Abstract:** *Objective:* This paper aims to investigate the efficacy of desogestrel in the treatment of endometriosis. *Methods:* In this study, 61 patients with endometriosis in our hospital from January 2023 to December 2023 were selected and divided using the random sampling method. All the patients were treated with desogestrel and the pain symptom scores and HDL-C (high-density lipoprotein cholesterol) levels of the patients were compared before and after the treatment. The treatment effects and adverse effects during the administration of the drug were closely observed. *Results:* After the patients were treated with desogestrel, the effective rate of treatment was as high as 98.36%, and the incidence of adverse reactions during treatment was 6.55%. Compared with the pre-treatment period, the scores of various pain symptoms were significantly reduced and the HDL-C level was improved after treatment, with  $P < 0.05$ . *Conclusion:* Desogestrel showed significant efficacy in the treatment of endometriosis, effectively relieving patients' pain while elevating HDL-C levels. In addition, the incidence of adverse reactions to this drug is relatively low, which is worth utilizing.

**Keywords:** Endometriosis; Adverse reactions; Dienogest

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## 1. Introduction

Endometriosis, as a relatively common condition in gynecology, has a prevalence of approximately 10% among women of childbearing age. Patients suffering from this disease may have clinical manifestations such as irregular menstrual cycles and pelvic pain, which have obvious adverse effects on their daily lives<sup>[1]</sup>. There is no clear clinical consensus on the pathogenesis of this disease. The mainstream view is that it may be affected by a combination of factors, including but not limited to environmental changes, social factors, immune function, and genetics. Currently, the clinical treatment of endometriosis is mainly based on both drugs and surgery. Although conventional surgical treatment can alleviate the related symptoms to a certain extent, its eradication effect is not satisfactory and the recurrence rate after surgery is high. Desogestrel, as a representative of luteinizing hormone drugs, is widely used in clinical medicine. Its unique pharmacological action can precisely regulate the stability of endometrial tissue<sup>[2]</sup>. Therefore, this study analyzes the practical application value of desogestrel in the treatment of endometriosis with 61 cases of endometriosis patients.

## 2. General information and methods

### 2.1. General information

In this study, 61 cases of endometriosis patients in our hospital were randomly selected from January 2023 to December 2023 for analysis and study. The disease duration of the patients was 6–40 months, with a mean of  $23.43 \pm 3.21$  months; they aged 25–50 years, with a mean of  $37.62 \pm 2.12$  years.

### 2.2. Methods

All 61 patients were treated with desogestrel (Nanjing Baijingyu Pharmaceutical Co., Ltd; State Drug License H20213439). Desogestrel 2 mg was taken orally once a day, and the treatment was continued for six months.

### 2.3. Observation indicators

The Biberoglu and Behrman (B&B) scale was used to compare the pain symptoms of patients before and after treatment, covering non-menstrual lower abdominal pain, dysmenorrhea, pain during sexual intercourse, etc. HDL-C (high-density lipoprotein cholesterol) levels of patients were compared before and after treatment. The treatment effect was observed: when the menstrual cycle returned to normal after treatment, the size of the pelvic mass was significantly reduced and the pain symptom disappeared, the treatment was considered to be highly effective; no improvement or aggravation of clinical symptoms indicated effective treatment. Total effective rate = (highly effective + effective) / total number of cases. Occurrence of adverse reactions (including vomiting, hyperthermia, night sweats, etc.) during treatment was also observed and recorded.

### 2.4. Statistical methods

All research data were analyzed using SPSS23.0 system. Count data were expressed by mean  $\pm$  standard deviation (SD) and %, and the differences between the two groups were compared by *t* and  $\chi^2$  tests.  $P < 0.05$  indicates statistically significant differences.

## 3. Results

### 3.1. Treatment effects

After evaluating the therapeutic effect of 61 patients, the results showed that there were 32 cases with highly effective treatment, accounting for 52.46%; 28 cases with effective treatment, accounting for 45.90%; and only 1 case with ineffective treatment, accounting for 1.64%. Combining the above data, the total effective rate of this treatment is as high as 98.36%.

### 3.2. Comparison of pain symptoms

After treatment, the patients' various pain symptom scores significantly reduced compared with pre-treatment,  $P < 0.05$  (Table 1).

**Table 1.** Comparison of various pain symptom scores before and after treatment in 61 patients (mean  $\pm$  SD)

Time	Non-menstrual lower abdominal pain	Dysmenorrhea	Pain during sexual intercourse
Before treatment ( $n = 61$ )	$4.32 \pm 1.34$	$2.87 \pm 1.63$	$4.62 \pm 1.66$
After treatment ( $n = 61$ )	$2.23 \pm 1.23$	$2.21 \pm 1.12$	$2.14 \pm 1.33$
<i>P</i>	$< 0.05$	$< 0.05$	$< 0.05$

### 3.3. Comparison of HDL-C levels

After treatment, the HDL-C level of patients significantly improved compared with pre-treatment,  $P < 0.05$  (Table 2).

**Table 2.** Comparison of HDL-C levels of 61 patients before and after treatment (mean  $\pm$  SD)

Time	HDL-C (mmol/L)
Before treatment ( $n = 61$ )	0.61 $\pm$ 0.06
After treatment ( $n = 61$ )	1.19 $\pm$ 0.12
<i>P</i>	$< 0.05$

### 3.4. Adverse drug reactions

After close observation of 61 patients, it was found that 2 patients had vomiting symptoms, 1 patient had night sweats, and 1 patient had fever. A total of 4 patients experienced adverse reactions during drug administration, and the incidence rate of adverse reactions was only 6.56%.

## 4. Discussion

Endometriosis is a common disease in the field of gynecology, which is characterized by the abnormal implantation of active endometrial cells in sites other than the endometrium. The incidence of this disease is relatively high in the group of women of childbearing age, which has a significant impact on women's health [3]. The main pathological features of endometriosis are fibrous tissue hyperplasia in the tissue surrounding the ectopic endometrium and cyclic bleeding, and these pathological changes further affect the clinical symptoms, which include irregular menstrual cycles, dysmenorrhea, formation of ectopic nodules, prolonged pelvic discomfort, and impaired fertility. Various organs and tissues in the pelvis may be affected by pathological changes, especially the fundic ligaments, ovaries, and the uterorectal recess [4,5]. In current clinical medicine, the treatment of endometriosis is centered on effectively relieving pain, reducing the extent of the lesions, lowering the risk of recurrence, and improving the success rate of pregnancy. Surgery is effective in relieving symptoms, but there is a high risk of recurrence after surgery. At present, hormonal drug therapy has become the mainstream treatment for endometriosis. However, in view of the significant adverse effects of hormonal drugs and their far-reaching impact on patients, their safety needs to be fully considered in the application process [6,7].

Desogestrel, as a synthetic progestin drug, has a very high affinity for hormone receptors. It lacks the activity of glucocorticoids and androgens, therefore, the effects on glucose and lipid metabolisms and estrogen are not significant [8]. The drug has a high efficiency of absorption after oral administration, and its metabolism in the body shows a stable half-life of about 10 hours [9]. The drug is mainly biotransformed via the kidneys and eventually excreted from the body in the form of metabolites. Desogestrel has demonstrated diverse mechanisms of action in the treatment of endometriosis. In addition to effectively mediating the function of the hypothalamic-pituitary-ovarian axis and thus inhibiting ovarian function, it also has the ability to inhibit the synthesis of estrogen-metabolizing enzymes, thus effectively lowering estrogen levels in the body [10,11]. In addition, the drug shows remarkable effects in anti-inflammatory, anti-angiogenesis, and scar inhibition, which effectively inhibits the occurrence and development of ectopic lesions. Scientific studies have shown that desogestrel can effectively inhibit the secretion of gonadotropins, leading to a significant decrease in estradiol levels in the body. With the continuous use of desogestrel, the internal environment of the body is maintained in

a stable state of low estrogen and high progesterone. In addition, it also promotes the process of decidualization of intrauterine tissues, which ultimately leads to the atrophy of uterine tissues <sup>[12,13]</sup>. It has been reported that the bone mineral density (BMD) level of patients showed a decrease in the initial period after receiving daily oral treatment with 2 mg desogestrel. However, after a period of acclimatization, the BMD levels gradually stabilized. Six months after discontinuation of the drug, the BMD levels gradually returned to normal. This observation fully verifies the relatively high safety of desogestrel in the treatment process <sup>[14,15]</sup>.

The results of this study showed that the total effective rate of dienogest treatment was as high as 98.36%. This result fully proves that desogestrel has an excellent performance in relieving patients' clinical symptoms and its efficacy is reliable. After treatment, patients' pain symptoms scores showed a significant decrease, which fully confirms that desogestrel has excellent efficacy in relieving pain symptoms in the treatment of endometriosis. After treatment, the patients' HDL-C levels increased compared with those before treatment. This demonstrates that the use of dienogest can effectively promote the elevation of HDL-C levels, thereby realizing a significant improvement in lipid metabolism. During treatment, the incidence of adverse reactions to dienogest was 6.56%, with a total of 4 patients experiencing adverse reactions. This data fully demonstrates that in the treatment of endometriosis, the adverse reactions of desogestrel are relatively few, and the safety of the drug is high. After discontinuation of the drug, patients will not need to take additional interventions, and their discomfort will subside and gradually return to normal.

## 5. Conclusion

In conclusion, desogestrel has demonstrated significant efficacy in the treatment of endometriosis, reducing pain and improving HDL-C levels. At the same time, the application of this drug also shows a high degree of safety and reliability, which is worth promoting in clinical settings.

## Disclosure statement

The authors declare no conflict of interest.

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