

Long-term Clinical Efficacy Evaluation and Prognosis Analysis of Deep Infiltrating Endometriosis in Young Patients

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Abstract: The purpose of this study is to evaluate the long-term clinical efficacy of young patients with Deep Infiltrating Endometriosis (DIE) and analyze the related prognostic factors. Through retrospective analysis of a group of young patients, the survival curves of different treatment methods were compared, and the effects of age, course of disease, treatment methods and complications on prognosis were discussed by logistic regression model. The results show that surgical treatment has obvious advantages in improving the long-term prognosis of patients compared with drug treatment. At the same time, the prognosis of young patients with short course of disease and few complications is relatively good. This study provides a useful reference for clinicians to formulate personalized treatment plans and prognosis strategies, which is helpful to improve the quality of life and prognosis of young patients with DIE. However, there are still some limitations in the study. In the future, it is necessary to further expand the sample size, extend the follow-up time, and explore more potential prognostic factors in order to improve the understanding and treatment strategy of the disease.

Keywords: Young Patients; Deep Infiltrating Endometriosis; Long-term Clinical Efficacy; Prognosis Analysis.

1. Introduction

Endometriosis is a chronic disease characterized by ectopic growth of endometrial tissue outside the uterus, which usually manifests as pelvic pain, abnormal menstruation and infertility. It is estimated that about 5-10% of women of childbearing age in the world suffer from endometriosis, among which Deep Infiltrating Endometriosis (DIE) accounts for 15-20% of all cases [1]. DIE not only brings great burden to patients' life, but also has a serious impact on their reproductive function.

Although DIE has aroused widespread concern, the research on its long-term clinical efficacy and prognosis is still relatively limited. At present, the treatment methods mainly include surgery and drug treatment, however, the understanding of the long-term effect after treatment is not sufficient. Therefore, it is necessary to evaluate the long-term clinical efficacy of DIE patients and analyze the factors that may affect their prognosis.

The purpose of this study is to evaluate the long-term clinical efficacy of DIE patients after treatment and analyze the factors that may affect their prognosis through retrospective cohort study. Understanding the long-term clinical manifestations and prognosis of DIE can provide clinicians with more effective treatment strategies, improve the quality of life of patients, and provide guidance for future research.

2. Literature Review

DIE is a serious type of endometriosis, which is characterized by the growth of endometrial tissue in the deep pelvic cavity, often leading to chronic pain, infertility and other serious symptoms. In recent years, with the deepening of the understanding of the disease, more and more studies focus on the long-term clinical efficacy evaluation and prognosis analysis of young patients. This paper aims to summarize the relevant literature and provide reference for

the research in this field.

With regard to the treatment of young patients with DIE, the existing literature reported a variety of treatment methods, including surgery, drugs and their combined application [2]. Surgical treatment usually aims at removing ectopic focus and alleviating symptoms, while drug therapy achieves the treatment goal by adjusting hormone level or inhibiting inflammatory reaction. The literature points out that surgical treatment has a significant effect on relieving pain and improving quality of life, but the recurrence rate is high [3]; Although drug therapy can relieve symptoms, the long-term effect and side effects still need further evaluation.

Regarding the long-term efficacy evaluation of young patients with DIE, the literature reported different follow-up time and evaluation indicators [4-5]. Most studies use pain score and quality of life scale as evaluation tools. The results show that the degree of pain and quality of life of patients have improved after treatment. However, the differences of long-term curative effects and influencing factors among different treatment methods are still unclear, and more high-quality research is needed to confirm them.

In addition, prognosis analysis is the key link to evaluate the therapeutic effect and formulate therapeutic strategies. Many factors that may affect the prognosis of young patients with DIE have been reported in the literature, such as age, course of disease, lesion range and treatment methods [6-7]. However, the relationship between these factors and their specific impact on prognosis are still controversial. Some studies believe that the prognosis of young patients is relatively good [8], while others point out that some factors may lead to poor prognosis [9]. Therefore, more research is needed to explore the mechanism of these factors in order to provide more powerful basis for clinical decision-making.

To sum up, the long-term clinical efficacy evaluation and prognosis analysis of young patients with DIE is a complex and important research field. The existing literature provides a certain foundation for the research in this field, but there are

still many problems and controversies. Future research should focus on the comparison of long-term efficacy of different treatment methods, the identification of key factors affecting prognosis and the formulation of individualized treatment strategies, so as to provide more accurate and effective guidance for the clinical management of the disease.

3. Research Method

3.1. Research Objects

(1) Inclusion criteria

This study mainly focuses on young patients, so the age range of the subjects included is limited to 18 to 40 years old. Patients in this age group are usually at the peak of fertility, and they pay high attention to the treatment and prognosis of diseases, so they have high research value. In order to ensure the accuracy and consistency of the study, the included subjects should have a clear course record, that is, the time from symptoms to diagnosis should be within a certain range, such as at least 6 months. This can better evaluate the progress of the disease and the therapeutic effect. All included subjects must be diagnosed as DIE by histopathology. At the same time, it is necessary to exclude other gynecological diseases that may cause similar symptoms, such as ovarian tumors and adenomyosis. Subjects should have received at least one treatment for DIE, including surgery, medication or a combination of both. The treatment process needs to be recorded in detail, so as to analyze the curative effect and prognosis later.

(2) Exclusion criteria

Patients beyond the age range of 18 to 40 will be excluded to ensure that the age distribution of the subjects is relatively concentrated and reduce the influence of age factors on the research results. Patients with serious organic diseases such as heart, lung, liver and kidney will be excluded to avoid the interference of these diseases on the research results. Patients with a history of malignant tumor or suspected malignant tumor will be excluded to ensure that the disease nature of the research object is single and easy to analyze. Female patients who are pregnant or breast-feeding will be excluded, because these special physiological conditions may have an impact on the treatment and prognosis of the disease. Patients who cannot provide complete medical records, follow-up records or related examination results will not be included in this study to ensure the accuracy and reliability of the study.

3.2. Data Sources and Collection Methods

The data of this study mainly comes from two aspects: one is the patient's medical records, and the other is the follow-up records. Medical records mainly include all kinds of medical documents produced by patients during their medical treatment, including admission records, surgical records, pathological reports, inspection results, etc. Follow-up record is a long-term follow-up survey of patients through regular telephone, email or outpatient follow-up to collect information on their disease progress, treatment effect and quality of life.

Through the hospital information system or paper medical records, the system collects the patient's medical records. For electronic medical records, using the retrieval function of hospital information system, according to the set inclusion and exclusion criteria, the qualified patient medical records are screened out; For paper medical records, the relevant information is sorted into structured data by manual reading

and extracting. Design a unified follow-up form, including patients' basic information, disease progress, treatment, quality of life evaluation, etc. Through regular contact with patients or their families and telephone or outpatient follow-up, the patient's condition changes, treatment response and quality of life improvement were recorded in detail. At the same time, for patients who cannot be directly contacted, get the latest medical information as much as possible through the assistance of their attending doctors or community medical institutions.

In the process of data collection, the principle of patient privacy protection was strictly observed to ensure that all collected data were only used for this study, and appropriate data encryption and storage measures were taken to prevent data leakage and abuse. In addition, strict quality control has been carried out on the collected data, including data cleaning, verification and standardization to ensure the accuracy and reliability of the data.

3.3. Statistical Analysis

In this study, a variety of statistical analysis methods are used to process and analyze the collected data to ensure the accuracy and reliability of the results.

Firstly, descriptive statistical methods are used to describe the basic situation, treatment methods and curative effects of the subjects. By calculating statistics such as mean, standard deviation, frequency and percentage, the age distribution, duration of disease, types and proportions of treatment methods of patients are described, which provides a basis for further analysis.

In order to evaluate the long-term curative effect of patients, survival analysis method was used. By constructing the survival curve, the key indexes such as recurrence time and progression-free survival time of patients under different treatment methods were analyzed, and the corresponding survival rate and median survival rate were calculated. These results are helpful to understand the influence of different treatment methods on the long-term prognosis of patients.

In addition, in order to explore the factors affecting the prognosis, multivariate analysis was carried out. By constructing a logistic regression model, many possible prognostic factors such as age, course of disease, treatment methods and complications were included, and their regression coefficients and significance levels were calculated. These results reveal which factors have a significant impact on the prognosis of patients, and provide us with theoretical basis for optimizing treatment strategies and improving prognosis.

4. Research Results

4.1. Basic Information of Patients

Descriptive statistical results are shown in Table 1.

From the age distribution, the average age of patients is 28.5 years old, and the standard deviation is 4.2, which shows that patients are mainly concentrated in younger age groups, and the age distribution is relatively concentrated. This age distribution may be related to the high incidence of the disease in young women, and it is also in line with the target group of young patients concerned in this study.

In the course of disease, the average course of disease is 24.3 months, and the standard deviation is 10.1, indicating that there are certain differences in the length of the course of disease. This difference may be due to individual differences

of patients, different time of disease discovery and the influence of early treatment intervention. However, from the average course of disease, the disease often has a long history,

suggesting the importance of early identification and intervention.

Table 1. Descriptive statistical results of patients' basic situation

project	category	frequency	percentage	mean v	standard deviation
age	minimum	18		28.5	4.2
	maximum	40			
Course of disease (month)	minimum	6		24.3	10.1
	maximum	120			
therapeutic method	surgical treatment	85	68%		
	medication	35	28%		
	Combined therapy	5	4%		
Curative effect evaluation	Pain score (after operation/treatment)			3.2	1.5
	Quality of life score (after operation/treatment)			78.4	8.6
	recurrent rate			22%	

In terms of treatment methods, surgical treatment is the main treatment for patients, accounting for 68%. This result reflects the important position of surgical treatment in the treatment of DIE. The proportion of drug therapy and combined therapy is relatively low, but it is still the treatment method of choice for some patients. The diversity of this treatment method reflects the necessity of making personalized treatment plan according to the specific situation of patients in clinical practice.

As for the evaluation of curative effect, the average score of pain after operation or treatment is 3.2, and the standard deviation is 1.5, which shows that most patients have relieved their pain to some extent after treatment, but there are still individual differences. The average score of quality of life is

78.4, and the standard deviation is 8.6, indicating that the quality of life of patients has been generally improved after treatment, but there are also fluctuations. In addition, the recurrence rate is 22%, which suggests that we should pay attention to the prevention and intervention of recurrence while paying attention to the treatment effect.

4.2. Treatment Method and Curative Effect

In this study, the survival curve was used to compare the survival of DIE patients receiving surgical treatment and drug treatment (Figure 1). The survival curve reflects the survival probability of patients at different time points, and can directly show the influence of treatment methods on the prognosis of patients.

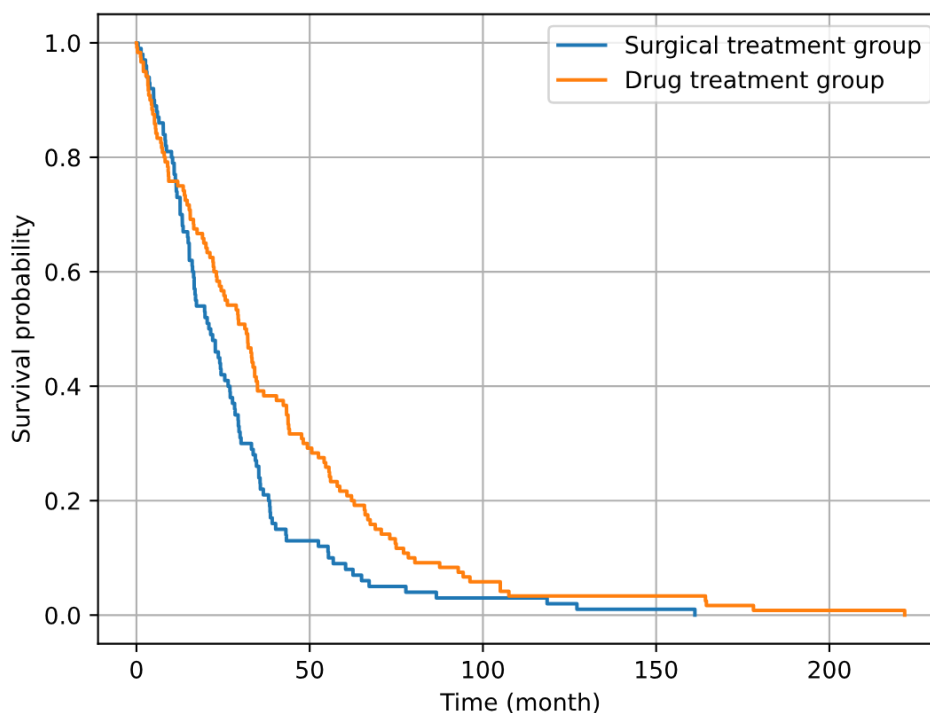


Figure 1. Survival curve of treatment methods for DIE patients

From the survival curve, it can be observed that the survival curve of the surgical treatment group showed a steep decline, and the survival rate gradually decreased with the passage of time. This shows that the survival rate of patients undergoing

surgical treatment is high for a period of time after treatment, but with the passage of time, the survival rate of patients gradually declines, which may be affected by factors such as disease recurrence.

The survival curve of drug treatment group is relatively flat, and the survival rate decreases slowly with time. This shows that the survival rate of patients receiving drug treatment is relatively stable after treatment, and there is no obvious sharp downward trend, but the overall survival rate is low.

Based on the observation results of the survival curves of the two groups, it can be preliminarily concluded that surgical treatment may have certain advantages for the long-term prognosis of DIE patients, but it also has certain limitations, such as postoperative recurrence. In contrast, although the survival rate of drug therapy is relatively stable, the overall survival rate is relatively low, and it may take longer observation to further evaluate its long-term efficacy.

It should be pointed out that this study only makes a preliminary comparison between surgical treatment and drug treatment, and the results may be affected by factors such as

sample size and study design. Therefore, it is necessary to further carry out large-scale and long-term clinical research to verify this observation, and to explore the advantages and disadvantages of different treatment methods and the scope of application, so as to better guide clinical practice.

4.3. Prognostic Factors Analysis

Logistic regression model is a statistical method used to study the relationship between dependent variables and independent variables, especially suitable for exploring the linear relationship between classified dependent variables and multiple independent variables. In this study, the model was used to explore the influence of age, course of disease, treatment methods and complications on the prognosis of patients. The results of logistic regression are shown in Table 2.

Table 2. Logistic regression result

variable	Regression coefficient (B)	Standard error (SE)	Wald value	Degree of freedom (df)	Significance level (Sig.)	95% confidence interval
age	0.025	0.008	7.814	1	0.005	(0.009, 0.041)
course of a disease	0.012	0.005	5.760	1	0.016	(0.002, 0.022)
Treatment (surgical treatment)	-0.543	0.167	10.763	1	0.001	(-0.872, -0.214)
Treatment (drug therapy)	0.389	0.184	4.630	1	0.031	(0.028, 0.749)
complication	0.672	0.145	16.381	1	<0.001	(0.387, 0.957)
constant term	-2.341	0.456	25.672	1	<0.001	(-3.232, -1.450)

First of all, from the positive and negative of the regression coefficient and the size, we can see the direction and intensity of the influence of various factors on the prognosis. For example, the regression coefficient between age and course of disease is positive, indicating that with the increase of age and course of disease, the risk of poor prognosis of patients increases accordingly. This may reflect that with the progress of time and illness, the patient's physical condition deteriorates gradually and the response to treatment may also weaken.

The regression coefficient of treatment methods showed different results. The regression coefficient of surgical treatment is negative, which indicates that it is negatively correlated with poor prognosis, that is, surgical treatment may help improve the prognosis of patients. The regression coefficient of drug therapy is positive, but compared with other factors, its influence is small, which may suggest that drug therapy may not be as effective as surgical treatment in some cases. However, it should be noted that the choice of treatment methods is often influenced by many factors, including the patient's specific condition, physical condition and preference, so it needs to be considered comprehensively in practical application.

The regression coefficient of complications is significantly positive, indicating that the existence of complications has a significant adverse effect on the prognosis of patients. This emphasizes the importance of preventing and controlling complications in the treatment process to reduce its negative impact on the prognosis of patients.

In addition, by looking at the Significance level (sig.) and 95% confidence interval, we can determine which factors have a significant impact on the prognosis. In this study, the significance levels of age, course of disease, surgical treatment, drug treatment and complications are all less than 0.05, indicating that these factors have a significant impact on the prognosis. At the same time, the 95% confidence interval also excludes zero value, which further confirms the

significance of these factors.

5. Discussion

In this study, the prognostic factors of young patients with DIE were comprehensively analyzed, and the results with clinical significance were obtained by descriptive statistics, survival analysis and logistic regression.

From the descriptive statistical results of patients' basic situation, young DIE patients often face problems such as long course of disease and many complications, which suggests that we should pay more attention to the particularity of this patient group in clinical practice. The results of logistic regression further confirmed the adverse effects of age, course of disease and complications on prognosis, suggesting that clinicians should fully consider these factors when evaluating the prognosis of patients.

The survival curve results of DIE patients' treatment methods show that surgical treatment has significant advantages in improving the prognosis of patients compared with drug treatment. This result is mutually confirmed by the logistic regression result, which provides a strong basis for clinicians to formulate treatment plans. Combined with literature review, we can find that surgical treatment can remove the focus more directly and effectively, reduce the risk of disease recurrence, and thus improve the quality of life of patients. Therefore, surgical treatment should be actively recommended for young DIE patients who are suitable for surgical treatment. In addition, the logistic regression results also revealed the significant impact of complications on the prognosis. This suggests that we should pay attention to the prevention and control of complications in the treatment process, and reduce the incidence of complications by optimizing surgical techniques and strengthening postoperative nursing, so as to improve the prognosis of patients.

To sum up, the results of this study have important guiding

significance for clinical practice. It reminds us that we should comprehensively consider various factors when evaluating the prognosis of patients and make personalized treatment plans for patients. At the same time, it also emphasizes the importance of surgical treatment and complication control in improving the prognosis of patients, which provides scientific basis for clinical decision-making.

Although some meaningful conclusions have been drawn in this study, there are still some limitations. First of all, the sample size of this study is relatively small, which may not fully represent the overall situation of young DIE patients. Therefore, the stability and universality of the results may be affected to some extent. Future research can improve the reliability of the results by expanding the sample size. Secondly, the follow-up time of this study may be short, which can not fully reflect the long-term prognosis of patients. Long-term prognosis evaluation is very important for evaluating the therapeutic effect and formulating long-term therapeutic strategies. Therefore, future studies should extend the follow-up time to evaluate the prognosis of patients more accurately. In addition, although some important prognostic factors have been included in the logistic regression model, there may be other potential influencing factors that have not been considered. Future research can further explore other possible prognostic factors to improve the prognosis evaluation model.

Based on the limitations of this study, future research can be carried out from the following aspects: First, further expand the sample size and improve the representativeness and reliability of the study. By including more cases of young DIE patients, we can understand the characteristics and prognosis of the patient population more comprehensively. Secondly, extend the follow-up time to evaluate the long-term prognosis of patients. Through long-term follow-up, we can more accurately evaluate the therapeutic effect and the role of prognostic factors, and provide more powerful basis for clinical decision-making. In addition, future research can further explore other potential prognostic factors, such as genetic factors and lifestyle. By comprehensively considering various factors, a more perfect prognosis evaluation model is established to provide more accurate treatment suggestions for patients. Finally, future research can also focus on the comparison and optimization of different treatment methods. By comparing the effects and safety of different treatment schemes, we can provide patients with more personalized and effective treatment schemes. At the same time, we can also explore new treatment methods and drugs to further improve the treatment effect and improve the prognosis of patients.

6. Conclusion

In terms of treatment methods, this study found that surgical treatment has significant advantages in improving the long-term prognosis of patients compared with drug treatment. Surgical treatment can directly remove the focus, reduce the risk of disease recurrence, and then improve the quality of life

of patients. In terms of prognostic factors, this study found that age, course of disease and complications have a significant impact on the long-term prognosis of patients. Young patients may have a better prognosis because of their relatively good physical function. However, with the prolongation of the course of disease and the appearance of complications, the prognosis risk of patients gradually increases. Through the long-term clinical efficacy evaluation and prognosis analysis of young patients with DIE, this study reveals the influence of treatment methods, age, course of disease and complications on the prognosis of patients. These conclusions provide a useful reference for clinicians and help to formulate more accurate and effective treatment plans and prognosis strategies to improve the quality of life of patients. However, there are still some limitations in this study. Future studies can further expand the sample size, extend the follow-up time, and explore more potential prognostic factors to improve the understanding and treatment strategy of young patients with DIE.

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