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Effect of Endocrine Therapy Combined with Trastuzumab Targeted Therapy on Response Rate and Quality of Life in HER2-Positive Metastatic Breast Cancer

Xulong Zhu[1,2], Feifei Zhang[1], Jian Jiao[3], Hongyi Zhang[3], Binliang Huo[1]*

1. Department of Surgical Oncology, Shaanxi Provincial People's Hospital, Xi'an 710068, China.

2. School of Life Science and Technology, Xi`an Jiaotong University, Xi'an 710049, China.

3. Department of General Surgery, Zhouzhi County People`s Hospital, Xi'an 710400, China.

Abstract: **Objective:** To analyze the effect of endocrine therapy combined with trastuzumab targeted therapy on HER2 (human epidermal growth factor receptor-2) positive metastatic breast cancer on the treatment efficiency and quality of life. **Methods:** Selected 100 patients with HER2-positive metastatic breast cancer who were treated in our hospital from January 2019 to December 2021, and divided them into a control group and an observation group according to the random number table method, with 50 cases in each group, and were given the clinical effects of single trastuzumab targeted therapy and endocrine therapy combined with trastuzumab targeted therapy were compared. **Results:** There was no significant difference in the incidence of adverse reactions between the two groups ($P>0.05$); the remission rate in the observation group was significantly higher than that in the control group ($P<0.05$); the overall health scale and function scale scores in the observation group were higher than those in the control group, and the individual items Measurement and symptom scale scores were lower than those in the control group ($P < 0.05$). **Conclusion:** Endocrine therapy combined with trastuzumab targeted therapy for HER2-positive metastatic breast cancer can effectively relieve the patient's condition and improve the patient's quality of life. The clinical effect is significant, and it is worthy of widespread application.

Keywords: Endocrine; Trastuzumab; Human Epidermal Growth Factor Receptor-2; Metastatic Breast Cancer

Introduction

As of 2020, there will be 420,000 new breast cancer patients in my country, of which HER2-positive breast cancer accounts for 20% to 25% of all breast cancer subtypes [1]. HER-2 is a proto-oncogene, which has an inhibitory effect on tumor cell apoptosis and accelerates the proliferation of tumor blood vessels, tumor cells, and lymph nodes. Therefore, HER2-positive breast cancer is not only more malignant, but may metastasize in the early stage of the disease. Chemotherapy sensitivity is relatively low, easy to relapse, treatment is relatively difficult, the survival period of patients is shorter [2]. Trastuzumab is the earliest drug used in the targeted therapy of HER2-positive breast cancer. It is a recombinant DNA-derived humanized monoclonal antibody that selectively acts on the extracellular site of HER2. It has anti-tumor effects in combination with endocrine therapy. protrude. In this study, 100 patients with HER2-positive metastatic breast cancer admitted to our hospital were specially collected to analyze the effect of endocrine therapy combined with trastuzumab targeted therapy. The report is as follows.

1. Materials and methods

1.1 General information

Selected 100 patients with HER2-positive metastatic breast cancer treated in our hospital from January 2019 to December 2021, and divided them into a control group and an observation group according to the random number table method, with 50 cases in each group, and the age of the control group was 32 ~69 years old, with an average age of (50.5±3.2) years old, including 13 cases of invasive ductal carcinoma, 10 cases of mucinous adenocarcinoma, 18 cases of invasive

lobular carcinoma, and 9 cases of medullary carcinoma; the observation group was 30 to 67 years old, with an average age of (48.5±3.2) years old, including 14 cases of invasive ductal carcinoma, 10 cases of mucinous adenocarcinoma, 16 cases of invasive lobular carcinoma, and 10 cases of medullary carcinoma; the general data of the two groups of patients were similar (P>0.05), and they were comparable.

Inclusion criteria: (1) The patient met the diagnostic criteria for metastatic breast cancer after histopathological examination, and the result of HER2 fluorescence in situ hybridization was positive (2) There was no missing personal data; (3) The patient and family members were aware of the research content, agree to participate in the research, and have signed the informed consent form; exclusion criteria: (1) heart, liver, and kidney organ function diseases; (2) autoimmune system diseases, primary malignant tumors, coagulation disorders; (3) drugs allergies; (4) mental disorders, mental illnesses, audio-visual impairments, and unable to communicate independently; (5) particularly poor compliance; this study was informed and approved by the ethics committee of our hospital.

1.2 Methods

The control group was given trastuzumab (manufacturer: Shanghai Fuhong Henlius Bio-Pharmaceutical Co., Ltd.; Chinese Medicine Approval: S20200019). At the beginning of administration, the loading dose was controlled at 4 mg/kg, and the infusion time was 90 minutes. We confirm the patient's tolerance to the first dose, control the maintenance dose at 2 mg/kg, complete the infusion within 30 minutes, and receive treatment once a week. On the basis of the control group, the observation group was given letrozole tablets (manufacturer: Zhejiang Hisun Pharmaceutical Co., Ltd.; Chinese medicine approved word: H20133109), each dose of 2.5 mg, orally once a day.

1.3 Observation indicator

(1) Complete remission: The patient's lesions disappeared completely, and there was no recurrence within 1 month; Partial response: The patient's lesion volume was reduced by more than 50% compared with that before treatment, and there was no recurrence within 1 month, and no new lesions appeared; Stable: The patient's lesion volume is less than 50% smaller than before treatment, or less than 25% increase in volume, no recurrence within 1 month, and no new lesions appeared; Progress: The patient's lesions increased by more than 25% compared with before treatment, and new lesions appeared; remission rate = (complete remission cases + partial remission cases)/total cases × 100%.

(2) The quality of life of patients was assessed by the core scale of quality of life. The higher the scores of the patient's overall health scale and functional scale, and the lower the scores of the symptom scale and single measurement, the better the patient's quality of life.

(3) The incidence of adverse reactions in the two groups, including gastrointestinal reactions, bone marrow suppression, skin damage, and fever, were recorded.

1.4 Statistical methods

SPSS24.0 statistical software was used for data analysis. Measurement data were expressed as mean ± standard deviation (±s), and t-test was used for comparison between the two groups. $\chi 2$ test was used for comparison between groups, and P<0.05 was considered statistically significant.

2. Results

2.1 Comparison of remission rates between the two groups of patients

The remission rate of the observation group was 94.00%, and that of the control group was 72.00%. The remission rate of the observation group was significantly higher than that of the control group (P < 0.05), as shown in Table 1.

Table 1 Comparison of remission rates between the two groups [n. (%)]

Groups	Number of cases	Complete relief	Partial relief	Stabilize	Progress	Remission rate
Control group	50	15（30.00）	21（42.00）	13（26.00）	1（2.00）	36（72.00）
Observation group	50	34（68.00）	13（26.00）	3（6.00）	0（0.00）	47（94.00）
X^2	-					8.5755
P	-					0.0034

2.2 Comparison of quality-of-life scores between the two groups of patients

The scores of global health scale and functional scale in the observation group were higher than those in the control group, and the scores of single measurement and symptom scale were lower than those in the control group ($P < 0.05$), as shown in Table 2.

Table 2 Comparison of quality-of-life scores between the two groups (±s points)

Groups	Number of cases	Overall health scale	Functional scale	Single measurement	Symptom scale
Control group	50	57.33±8.92	60.23±10.12	43.28±5.21	47.85±6.57
Observation group	50	63.34±9.51	66.59±9.23	39.21±5.26	42.33±5.06
t	-	3.2593	3.2833	3.8872	4.7068
p	-	0.0015	0.0014	0.0002	0.0000

2.3 Comparison of adverse reactions between the two groups of patients

There was no significant difference in the incidence of adverse reactions between the two groups ($P > 0.05$), as shown in Table 3.

Table 3 Comparison of adverse reactions between two groups [n. (%)]

Groups	Number of cases	Gastrointestinal reactions	Myelosuppression	Skin damage	Fever	Occurrence of adverse reactions
Control group	50	5（10.00）	4（8.00）	2（4.00）	4（8.00）	15（30.00）
Observation group	50	6（12.00）	2（4.00）	1（2.00）	3（6.00）	12（24.00）
X^2	-					0.4566
P	-					0.4992

3. Discussion

Metastatic breast cancer incidence is higher in the group of women, place more focus on mammary gland flocculus, ductal epithelium. At present, about breast cancer pathogenesis, clinical, there is no clear conclusion, some scholars think with their immunity is low, genetic factors, such as patients exist genetic damage, HER2 gene amplification, The expression of HER-2 in the body is significantly increased [3]. As the breast belongs to the gonadal organ, it plays a functional role in regulating the endocrine system of the human body, especially the abundance of androgen receptors, estrogen receptors and progesterone receptors in the breast epithelial cells. Therefore, the incidence and progression of breast cancer are closely related to abnormal endocrine regulation [4]. In recent years, the incidence of breast cancer continues to rise, and the prevalence of breast cancer has exceeded that of lung cancer. In the early stage of the disease, nipple discharge, breast

swelling and axillary lymphadenopathy of patients will be caused. If not controlled in time, the HER-2 overexpressing cells of patients will generate a large number of HER-2 heterodimers, and the signal pathway will be activated to accelerate tumor progression, which may cause multi-organ lesions and shorten the survival time of patients [5].

At present, more than in the early treatment of breast cancer with surgery is given priority to, but for Ⅲ and Ⅳ period patients to control the effect not beautiful, with patients transfer cells within the body, the operation difficulty is higher, and have been unable to completely lesions in patients with amputated. Therefore, to explore safe and effective HER2 positive metastatic breast cancer drug treatments become clinical research important topic. Trastuzumab is a molecular targeted therapy drug, which can have a specific binding effect with HER2 receptor to prevent HER2 from forming heterodimer. At the same time, it can block the HER-2 pathway, promote the degradation and separation of HER-2 receptor, and its cytotoxic effect affects target cells, thus achieving the inhibitory effect of tumor cell proliferation [6]. To belongs to selective aromatase inhibitor letrozole, endocrine therapy is commonly used medicine, has high selectivity, can promote estrogen biosynthesis, decreased estrogen levels, and not in the process of drug for patients with thyroid function, mineralocorticoid, adrenal cortical hormone, glucocorticoid, aldosterone produced great influence, and cytochrome P450 enzyme subunit heme competitive binding, can inhibit tumor growth. The remission rate of the observation group was significantly higher than that of the control group ($P < 0.05$). The scores of global health scale and functional scale in the observation group were higher than those in the control group, and the scores of single measurement and symptom scale were lower than those in the control group ($P < 0.05$). The results suggest that endocrine therapy combined with trastuzumab targeted therapy is significantly better than single therapy in HER2-positive metastatic breast cancer.

In conclusion, endocrine therapy combined with trastuzumab targeted therapy for HER2-positive metastatic breast cancer can effectively alleviate the disease and improve the quality of life of patients, which is worthy of wide promotion and application.

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