

Effectiveness of Precise Radiotherapy Technique in the Treatment for Elderly Patients with Tumor Diseases

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Abstract: 88 elderly patients with tumor diseases who received corresponding treatment in the hospital from December 2021 to December 2022 were randomly selected as subjects of the study for comparative retrospective analysis. Patients in the research group received precise radiation therapy (n=44), while that in the control group received conventional radiation therapy (n=44). This paper analyzes the clinical effectiveness of precise radiotherapy technique in the treatment for elderly patients with tumor diseases.

Keywords: Elderly Patients with Tumordiseases; Precision Radiotherapy Technique; Treatment Effect

1. Introduction

At present, with the intensification of the aging population in China, the number of elderly people is showing an increasing trend. Due to their weak resistance and immunity, the probability of suffering from tumor diseases increases. Conducting tumor diagnosis and treatment in clinical practice has always been one of the key research topics, and implementing effective treatment methods is even more difficult for elderly patients with tumordiseases with multiple comorbidity. Radiation therapy is mainly used in clinical practice. Generally speaking, conventional radiation therapy mainly uses radiation to kill cancer cells in patients' tumor drugs. It can achieve effective therapeutic effects, but it will cause certain damage to normal human tissues. In order to avoid organ damage during the treatment process, precise radiotherapy is of great significance [1]. Therefore, in order to better protect the organs of patients, this paper mainly analyzes the clinical effects of using precise radiotherapy technique in the treatment for elderly patients with tumor diseases.

2. Information and Methods

2.1 General Information

88 elderly patients with tumordiseases who received corresponding treatment in the hospital from December 2021 to December 2022 were randomly selected as subjects of the study for comparative retrospective analysis. They were randomly labeled with numbers 1-88 through a computer and divided into two groups on average. The singular number was recorded as the research group, and precise radiotherapy technique were used in this group (n=44). There were 29 male patients and 15 female patients in the research group with a mean age of (68.78 ± 5.56) years old. The double number was recorded as the control group, and conventional radiation therapy technique were used in this group (n=44). There were 28 male patients and 16 female patients in the control group with a mean age of (67.34 ± 6.09) years old. Inclusion criteria: (1) All patients were diagnosed with tumor diseases and received relevant treatment in our hospital, and patients are over 60 years old. (2) Patients and their family members are aware of the content of this study and sign an informed consent form. (3) The relevant ethics research committee approved the discussion of this study. Exclusion criteria: (1) Patients suffering from other major diseases. (2) Patients with severe organ failure. (3) Individuals with incomplete information. (4) Individuals with mental disorders and lack of cooperation.

2.2 Methods

Patients in the control group received conventional radiotherapy technique, and their body was entirely scanned by regular X-ray films to determine the location of the tumor. And then radiation therapy was performed on the patient based on the display results of X-ray anteroposterior and lateral films. In regular radiation therapy, it is difficult to accurately determine the depth of the patient's tumor by X-ray films. Patients in the research group received precise radiation therapy technique. After fixing

the patient's body position, CT image reconstruction was used to simulate the patient's physique. Through the examination results of different rays on the patient, the radiation dose of each part of the patient's body was accurately calculated, and the tumor tissue of the patient was accurately irradiated, which effectively protects the normal organ tissue of the patient.

2.3 Observation Indicators

In this study, the author compared the improvement in quality of life, degree of pain improvement and the incidence of complications between the two groups of patients before and after treatment. The improvement in quality of life was scored by the SF-36 scoring method with a maximum score of 100 points. The higher the patient's score, the more significant the improvement in quality of life is. The degree of pain was observed based on the VAS pain scoring method with a standard of 0-10 points, including no pain (0 point), severe pain (10 points), mild pain (1-3 points), moderate pain (4-6 points), and severe pain (7-10 points)^[2]. The incidence of complications mainly include gastrointestinal complications,

nausea and vomiting, diarrhea, organ damage, etc.

2.4 Statistical Methods

SPSS 19.0 statistical software was adopted for data analysis. The improvement in quality of life, degree of pain was analyzed by t-tests and expressed as ($\bar{x} \pm s$). The incidence of complications were analyzed by percentages (%). The data was compared by χ^2 tests. If the value of P is less than 0.05, the difference was statistically significant.

3. Results

3.1 Comparison of the Improvement of Quality of Life Before and after Treatment between Two Groups

In this study, the score of quality of life in the research group after treatment was (86.98 ± 4.76) points, while that in the control group was (70.78 ± 3.67) points. Obviously, the quality of life in the research group was better than that in the control group ($P < 0.05$). The specific data is shown in Table 1.

Table 1. Comparison of Improvement of Quality of Life before and after Treatment between Two Groups ($\bar{x} \pm s$)

Group	Case	Before treatment	After treatment
Research group	44	52.78 ± 6.76	86.98 ± 4.76
Control group	44	52.73 ± 6.29	70.78 ± 3.67
t	-	2.863	10.892
p	-	0.878	0.001

3.2 Comparison of Degree of Pain Improvement Before and after Treatment between Two Groups

In this study, the score of degree of pain in the research group after treatment was (3.78 ± 1.78)

points, while that in the control group was (4.99 ± 0.78) points. Thus the pain score of the research group was better than that of the control group ($P < 0.05$). The specific data is shown in Table 2.

Table 2. Comparison of Degree of Pain Improvement before and after Treatment between Two Groups ($\bar{x} \pm s$)

Group	Case	Before treatment	After treatment
Research group	44	8.43 ± 0.34	3.78 ± 1.78
Control group	44	8.41 ± 0.32	4.99 ± 0.78
t	-	2.788	11.973
p	-	0.832	0.001

3.3 Comparison of the Incidence of Complications Before and After Treatment between Two Groups

In this study, the incidence of postoperative complications in the research group was 9.09%

(4/44), while that in the control group was 25.00% (11/44). The incidence of complications in the research group was significantly lower than that in the control group ($P < 0.05$). The specific data is shown in Table 3.

Table 3. Comparison of the Incidence of Complications after Treatment between Two Groups (n (%))

Group(n=44)	Organ damage	Gastrointestinal complications	Nausea and vomiting	Diarrhea	Incidence of complications
Research group	1	1	1	1	9.09%(4/44)
Control group	2	3	3	3	25.00%(11/44)
t	-	-	-	-	10.783
p	-	-	-	-	0.001

4. Discussion

For elderly patients with tumor diseases, the treatment is mainly carried out through methods such as surgery, radiation, and chemotherapy. Due to the decline of their resistance and immunity, the sensitivity of various organs and tissues of the body to carcinogen has increased, and more and more carcinogens have been formed in the body during the accumulation process over the years, resulting in a higher prevalence of tumor diseases than young adults. The elderly people belongs to one of the high incidence groups of tumor diseases [3]. In clinical practice, there are certain difficulties in treating elderly patients with tumor diseases, and the risks and difficulties of surgical treatment are higher. It is necessary to make reasonable choices based on the patient's own physical fitness, and not every elderly patient is suitable for surgical treatment. Due to the combination of hypertension, diabetes and other basic chronic diseases in elderly patients, it is difficult to treat them. In addition, the latency of tumor disease is long, the focus is hidden deeper, tumor diseases are induced in multiple parts, and the recovery is slow after treatment, so symptomatic treatment should be combined with the specific conditions of elderly patients in the treatment process. In clinical practice, the use of radiation and chemotherapy therapy for elderly patients is sometimes significantly better than surgical treatment, and it is considered a more effective alternative treatment method [4].

When radiotherapy is performed on patients with tumor diseases, various adverse reactions can be induced, especially when radiotherapy and chemotherapy are carried out simultaneously, which may lead to gastrointestinal complications, nausea and vomiting, diarrhea, organ damage, and other discomfort. In order to effectively alleviate various complications that patients may experience during radiation therapy, it is necessary to accurately control the patient's

radiation and chemotherapy doses during the treatment process. With the continuous development of radiation therapy technology, three-dimensional technology and four-dimensional mode, it is possible to more accurately detect the tumor location of patients. By combining computer network image processing technology and high-precision dose calculation algorithms, the patient's radiation dose can be accurately calculated, which provides effective radiation therapy for patients and ensures that the tumor part of the patient is effectively treated. And it is also possible to protect the normal organs and tissues of patients as much as possible from the impact of radiation dose. Compared with conventional radiation therapy, precision radiotherapy technique can effectively control the radiation dose of tumor lesions, avoid radiation damage to normal tissues, organs, and cells, and accurately locate the patient's lesion area to achieve uniform irradiation [5]. In this study, the use of precision radiotherapy significantly improved the quality of life and pain of patients, and the incidence of complications was lower than that of conventional radiotherapy [6]. The relevant data has certain reference value.

In summary, the use of precise radiotherapy technique in the treatment for elderly patients with tumor disease has good clinical therapeutic effects. It can effectively improve their quality of life, reduce the incidence of adverse reactions during the treatment, and improve the treatment efficiency. Therefore, this treatment method is worth promoting and being applied in clinical nursing.

References

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