Trends in Oncology Vol 5 Issue 2 2023

Original Research Article

Open Access

Omniscient Pte.Ltd.

Analysis and Treatment Strategies for Common Complications in Oncology Treatment

Shu-Hong Liu*

***Correspondence to:** Shu-Hong Liu, Linyi Cancer Hospital, Linyi, Shandong, 276001, China, E-mail: sdlyjsz@126.com

Abstract: Objective: To analyze the common complications and treatment strategies in oncology treatment. **Methods:** A total of 92 patients from the oncology department of our hospital from January 2023 to December 2023 were selected for the study. They were divided into a control group of 46 cases, receiving traditional supportive treatment, and an observation group of 46 cases, receiving comprehensive supportive treatment. The clinical efficacy between the two groups was compared. **Results:** Among the 92 patients, 24 cases experienced complications, with an incidence rate of 26.09%. There were 4 cases in the observation group and 20 cases in the control group, the former significantly lower than the latter ($P < 0.05$). The SAS and SDS scores in the observation group were significantly lower than those in the control group ($P < 0.05$). **Conclusion:** Comprehensive supportive treatment in oncology can effectively prevent complications such as infection and drug extravasation, alleviate negative psychological effects, and has promotional value.

Keywords: Oncology; Complications; Comprehensive supportive treatment; Psychological state

Oncological diseases pose significant hazards, influenced by factors such as environmental pollution and daily lifestyle habits, leading to a continuous rise in disease incidence [1]. Chemotherapy, the primary treatment modality for these diseases, effectively kills tumor cells. However, it is associated with numerous side effects and complications, such as decreased appetite, nausea, and vomiting, affecting gastrointestinal function and reducing the quality of life [2]. Over time, patients may experience difficulty eating, poor nutritional status, and weakened immunity, leading to increased treatment difficulty. Therefore, adopting standardized and advanced therapies to prevent and control complications, enhance treatment efficacy, and improve patients' emotional well-being can help enhance their quality of life. This study focuses on oncology patients, analyzing common complications and summarizing the effectiveness of comprehensive supportive treatment.

1. Data and Methods

1.1 General Information

A total of 92 patients from the oncology department of our hospital were selected for the study from January 2023 to December 2023. They were randomly divided into two groups using a random number table method: the control group comprised 46 cases, including 24 males and 22 females, with an age range of 32 to 76 years and a mean age of (51.26±4.68) years; the observation group comprised 46 cases, including 25 males and 21 females, with an age range of 33 to 77 years and a mean age of (51.42±4.59) years. There were no significant differences in general data between

the two groups ($P > 0.05$), indicating comparability.

1.2 Methods

1.2.1 Analysis of Common Complications

1) Bone Marrow Suppression: After chemotherapy, patients often experience bone marrow suppression, with significant reductions in neutrophils and white blood cells, increasing the risk of infection.

2) Infection: Chemotherapy increases the risk of infection, and once it occurs, the disease may progress continuously, leading to sepsis.

3) Skin Toxicity: Treatment may cause skin toxicity, manifesting as hair loss, rash, itching, and dermatitis. Hair loss is particularly common, especially in first-time chemotherapy recipients.

4) Gastrointestinal Reactions: Common symptoms include vomiting and nausea. Severe vomiting may lead to electrolyte imbalances and dehydration. Chemotherapy drugs can also cause oral ulcers, stomatitis, and severe pain, affecting food intake and leading to inadequate nutrition.

5) Chemotherapy Drug Extravasation: Administration of chemotherapy drugs via intravenous injection may lead to leakage and infiltration of local soft tissues and skin, resulting in specific inflammation with symptoms such as mild erythema and local pain.

6) Others: Chemotherapy drugs may also cause toxicity to organs such as the kidneys, heart, brain, and liver.

1.2.2 Treatment Methods

For the control group receiving conventional adjunctive therapy: Prior to chemotherapy, preparations are made, close cooperation with doctors is maintained, and routine therapies are provided at corresponding stages, with changes in patient conditions being recorded.

For the observation group receiving comprehensive adjunctive therapy:

1) Medication Treatment: During chemotherapy, patients may experience vomiting, for which anti-diarrheal and antiemetic medications are provided as per physician instructions. Prophylactic medication is recommended, including methyl cellulose to prevent constipation. If constipation occurs, osmotic or solvent laxatives such as polyethylene glycol, phenolphthalein, or senna leaf can be used. Magnesium sulfate may be provided for constipation in elderly patients, along with abdominal heating and massage using circular overlapping strokes. Acupressure at points such as Hegu, Tianshu, Zusanli, Zhigou, and Dachangshu can effectively prevent constipation and guide patients through bowel training. Additionally, cytotoxic therapy may lead to necrotic cell death, so medications promoting cell growth are administered to stimulate blood cell growth. Anti-infective therapy is administered using commonly used drugs such as aminoglycoside antibiotics and broad-spectrum penicillins. Pathogenic bacteria tests are conducted, and if positive results are obtained along with fever symptoms, a drug sensitivity test is performed to select appropriate antibiotics. Treatment lasts for 2 weeks, and if the fever subsides and the test results normalize, medication is continued until neutrophil counts rise above 0.5×10^9/L without signs of infection, at which point medication is discontinued. If the test results are negative but neutrophil counts remain low with fever, fungal infection should be considered, and drugs such as amphotericin B or fluconazole are recommended for treatment. Patients with signs of infection may be administered interferon or acyclovir.

2) Health Education: Most cancer patients are unaware of treatment plans and may fear treatment. Therefore, before chemotherapy, medical staff should thoroughly explain the chemotherapy regimen and provide information about cancer to improve patient compliance and ensure smooth chemotherapy.

3) Dietary Therapy: Dietary guidance is provided as chemotherapy can cause symptoms such as nausea, vomiting, and oral ulcers, which may decrease appetite and food intake. Patients are encouraged to consume protein-rich and high-vitamin foods, maintain a light diet, eat small meals frequently, and stay hydrated.

4) Psychological Therapy: Cancer diagnosis increases psychological stress and can lead to anxiety and fear. Psychological counseling strengthens patient compliance, especially during treatment when complications may arise, causing emotional fluctuations. Medical staff should fully understand and empathize with patients, divert their attention, stabilize their emotions, reduce mental stress, and improve compliance. Tailored approaches are adopted; for example, patients are reassured that hair loss is a common side effect of chemotherapy and will diminish after treatment cessation, and hair regrowth is reversible, relieving unnecessary concern. For

patients experiencing nausea and vomiting, staff can engage them in topics of interest, shift their focus to lighthearted and enjoyable topics, and maintain a relaxed and stable mindset.

5) Personalized Treatment: Disinfection of wards is carried out regularly, and air is disinfected using ultraviolet light, ensuring ventilation. For cancer patients, skin and oral interventions are performed to prevent fungal infections. Patients are taught proper deep breathing and coughing techniques to prevent lung infections. During intravenous infusion, patients' major veins are protected, and infusion sites are chosen away from joints or via the antecubital vein. Disinfection and isolation measures are implemented to ensure protective isolation.

1.3 Observation Items and Indicators

Assessment of Complications[3]: This includes bone marrow suppression, infection, skin toxicity, gastrointestinal reactions, chemotherapy drug extravasation, and others. Evaluation of Psychological Status: The Self-Rating Anxiety Scale (SAS)[4] is used to assess anxiety, with a cutoff score of 57 points, and the Self-Rating Depression Scale (SDS)[5] is used to assess depression, with a cutoff score of 55 points.

1.4 Statistical Methods

Data were analyzed using SPSS 27.0. Results are presented as (mean ± standard deviation) or as percentages (%). The t-test and chi-square test were used for continuous and categorical data, respectively. A significance level of $P < 0.05$ was considered statistically significant.

2. Results

2.1 Comparison of Complications between the Two Groups

Among the 92 patients, a total of 24 cases experienced complications, with an incidence rate of 26.09%. In the observation group, there were 4 cases, while in the control group, there were 20 cases. The former was significantly lower than the latter ($P < 0.05$). See details in **Table 1**.

Table 1 Comparison of complications between the two groups[n(%)]

Group	Example number	arrest of bone marrow	infect	dermal toxicity	Gastrointestinal reaction	Chemotherapy drug spillover	Other	Incidence Rate
observation group	46	0	1	1	1	1	0	8.70
control group	46	3	3	3	4	4	3	43.48
x^2	/	/	/	/	/	/	/	14.431
P	/	/	/	/	/	/	/	0.000

2.2 Comparison of Psychological States between Two Groups

After treatment, the SAS and SDS scores of both groups were significantly lower than before treatment, with a more pronounced change in the observation group ($P < 0.05$). See details in **Table 2**.

Table 2 Comparison of the psychological states of the two groups[$n(\overline{x}\pm s)$]

Group	Example number	SAS（分）		SDS（分）	
		Before treatment	After treatment	Before treatment	After treatment
observation group	46	57.38±4.16	32.26±3.61[a]	55.39±3.68	30.25±4.09[a]
control group	46	57.62±4.07	42.25±4.19[a]	55.42±3.59	40.41±3.91[a]
t	/	0.280	12.251	0.040	12.178
P	/	0.780	0.000	0.969	0.000

Note: Compared with the pre-treatment within this group, [a]$P < 0.05$.

3. Discussion

In recent years, the number of new cancer cases worldwide has been on the rise, with common types including colorectal cancer, gastric cancer, among others, leading to increased economic burden on patients. Chemotherapy, as a treatment, can prolong

the lifespan of patients, suppress disease progression, and improve their quality of life. However, during treatment, patients may exhibit negative attitudes towards treatment and loss of appetite, which can interfere with the effectiveness of chemotherapy. Cancer is influenced by various factors such as ionizing radiation, poor lifestyle habits, as well as endocrine and genetic factors. Despite the effectiveness of chemotherapy in strengthening cancer treatment, there are several existing issues, including multiple complications.

The adoption of comprehensive adjunctive therapy, tailoring drug regimens according to patient conditions, specifying dosage intervals and amounts, and monitoring during drug administration to ensure appropriate dosage and routes, can enhance treatment efficacy and prevent complications. Considering that cancer patients generally have weakened constitutions and that medications themselves have toxicities, improper medication use may not only interfere with the efficacy of drugs but also accelerate disease progression. Tailoring appropriate drug regimens according to the patient's condition can enhance treatment efficacy. Many patients exhibit negative or anxious psychological states; therefore, providing detailed explanations of cancer knowledge, treatment methods, introducing successful cases, and boosting their confidence can help maintain a relaxed and stable mentality, thereby increasing compliance. Dietary therapy can actively supplement patients' nutrition, ensure that the diet structure is targeted and reasonable, and enhance immune function. Personalized treatment can improve the patient's condition as quickly as possible, prevent complications, and improve quality of life.

The results of this study show that among the 92 patients, 24 experienced complications, with an incidence rate of 26.09%. There were 4 cases in the observation group and 20 cases in the control group, with the former significantly lower than the latter ($P < 0.05$), indicating that comprehensive adjunctive therapy effectively prevents complications and ensures chemotherapy safety. The SAS and SDS scores of the observation group were significantly lower than those of the control group ($P < 0.05$), indicating that this therapy can alleviate negative emotions, help patients strengthen their confidence, and maintain a relatively relaxed and pleasant mood, thus maintaining their physical and mental health. This suggests that the application of comprehensive adjunctive therapy can enhance the efficacy of oncology treatment, maintain patient safety, and improve physical and mental health.

In summary, adopting comprehensive adjunctive therapy in oncology treatment can effectively prevent complications such as infections and drug leakage, alleviate negative psychological states, and has significant value for promotion.

References

[1] Geng R, Ma JQ, Guo Q, Niu ZF. Treatment preferences and influencing factors for comprehensive treatment of elderly breast cancer patients. *International Journal of Oncology*. 2023;50(11):650-654.

[2] He ZM, Li FL. Application status of digital oral localization stent in radiotherapy of head and neck tumors. *International Journal of Stomatology*. 2024;51(1):28-35.

[3] Feng XM, Song W, Ma JW, Shi L. Efficacy of intensified radiotherapy for undifferentiated nasopharyngeal carcinoma and changes in serum sE-cad and PDGF levels before and after treatment. *Chinese Journal of Otorhinolaryngology and Skull Base Surgery*. 2023;29(6):22-27.

[4] Dong XL, Wang H, Wen J, Xu JP. Clinical case of Huangqi Jianzhong Tang in the treatment of complications of malignant tumors. *Chinese Folk Therapy*. 2023;31(24):107-110.

[5] Chen HH, Zhou JH, Qiu Q, Li LL. Research progress of traditional Chinese medicine in the treatment of breast cancer. *Western Chinese Medicine*. 2023;36(12):152-155.

[6] Fan JK, Zhu JL, Hou L. Comparison of thoracoscopic pulmonary lobectomy and open surgery for the treatment of lung cancer. *China Urban and Rural Enterprise Health*. 2023;38(11):111-113.

[7] Zhou X, Huang CJ, He YR, Deng JL, Du FZ, Li G. Clinical study on the treatment of superior vena cava syndrome caused by iodine-125 particle implantation for lung cancer. *Modern Medicine and Health*. 2023;39(22):3830-3833.

[8] Fan WJ, Fu J, Jiang CZ, Chen JF, Ding CY, Wang ZC, Wang CY, Lin YX, Kang DZ, Yan XR.

Experience in the treatment of pituitary endocrine tumors extending to the saddle through the neuroendoscopic endonasal approach. *Chinese Journal of Neurosurgery*. 2023;39(11):1097-1102.

[9] Jing FF, Chen C. Analysis of factors influencing the occurrence of complications after endoscopic treatment of early esophageal cancer and precancerous lesions. *Practical Cancer Journal*. 2023;38(11):1855-1858.

[10] Chang KL, Yu MC. Application comparison of superficial parotidectomy and endoscopic-assisted frontal incision for benign tumors of the parotid gland. *Medical Theory and Practice*. 2023;36(22):3846-3848.

[11] Zheng MS, Wu ZH, Qiu GF. Effect of neoadjuvant chemotherapy combined with surgery in the treatment of esophageal cancer. *China Health Standards Management*. 2023;14(22):137-140.