Original Article

Application Value of Comprehensive Nursing Intervention in Sorafenib Targeted Therapy for Advanced Liver Cancer

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Abstract

Background: The liver is affected by various types of cancer, of which the most common type is hepatocellular carcinoma. Its first symptom is found in the hepatocyte cells of the liver. There are also other types of cancer in the liver, though less common, such as hepatoblastoma and intrahepatic cholangiocarcinoma.

Objective: The aim of this paper is to study the application value of comprehensive nursing intervention in sorafenib targeted therapy for advanced liver cancer.

Methods: 40 patients with advanced hepatocellular carcinoma were included in this study, and oral sorafenib was taken twice a day. For the patients in the observation group, the usual method was used for their treatment, along with the comprehensive care method. Combined molecular targeted therapy is a relatively new method currently used in the treatment of primary liver cancer in our country's medical community.

Results and Discussions: Following the administration of the drug sorafenib, patients developed severe diarrhoea and pancreatic atrophy. When the phenomenon of atrophy occurs, the treatment effect for patients with primary liver cancer is more apparent. Comprehensive care for patients with advanced liver cancer, including comprehensive scientific and reasonable care from the psychological, physical, and mental diet of patients can effectively control and relieve various adverse emotions of patients, thereby improving the patients' triumph over pain and the disease.

Conclusion: With confidence and courage, implementing comprehensive care can effectively improve the patient's quality of life. [*Ethiop. J. Health Dev.*2022: 36(1):00-00]

Key words: Comprehensive nursing intervention; Sorafenib; Targeted therapy; Mid-advanced liver cancer

Introduction

According to relevant medical records, cancer has become the first major disease affecting people's health and wellbeing in the world. A substantial amount of people dies from cancer every year. These deaths occur daily and include members of society, family, and friends. Cancer is closely related to people's lives and seriously affects people's health [1]. Various countries in the world have conducted systematic research on cancer diagnosis and treatment, and according to incomplete data reports, of all the cancers that cause death, liver cancer is the most common type of cancer and a type of cancer that people are most susceptible to. The morbidity and mortality rate of cancer in various countries around the world have always been high and have now become the first. Cancer is considered a disease that threatens the safety of human life. According to medical research on the diet and living conditions of most cancer patients, it has been found that people with liver cancer, usually drink a lot of alcohol and eat substances containing aflatoxin. Aflatoxins are naturally occurring mycotoxin, mainly derived from the Aspergillus species and potential carcinogen occurs through dietary intake, which can cause severe liver disorders. Among the four potential aflatoxins B1, B2, G1 and G2; aflatoxins B1 is more likely to cause Hepatocellular Carcinoma (HCC). The Chronic hepatitis B Virus (HBV) infection may increase the hepatic oxidative damage, therefore persistent liver Cirrhosis symptoms develop into HCC [17]. Aflatoxins are naturally found poisonous mycotoxins, predominantly produced by *Aspergillus flavus* and *Aspergillus parasitic*. Contaminated food grains, and nuts produce aflatoxins B1, B2, G1 and G2, and these are highly toxic and carcinogenic for human and animal intake. Serious health issues like gene mutation, immune-suppression, growth retardation, and chronic diarrhoea may cause severe physiological damage [18, 19]. There is an association with regards to some patients with hepatitis, especially hepatitis B and hepatitis C, which indicates that these illnesses, will slowly turn to liver cirrhosis until they develop liver cancer due to the long-term effects of the diseases. As compared to the other parts of the world, the number of people suffering from liver cancer in China is relatively high, and the incidence of liver cancer in China is also increasing annually. Although, there have been major developments in terms of the diagnosis and treatment of liver cancer, the recovery rate of liver cancer is still relatively low [2]. A significant number of patients in Asia, especially in Southeast Asia and Africa, are patients who had first suffered from hepatitis B. Hepatitis B gradually developed from liver cirrhosis to liver cancer, and in Western countries, the patients have been found to have had hepatitis C which developed into liver cancer. A significant number of patients with liver cancer have a certain degree of cirrhosis before the cancer. This is also a major difference between primary liver cancer and other cancers. For patients with primary liver cancer, if early treatment is administered early, then the cancer can be cured, however, because primary liver cancer does not produce any adverse symptoms in the human body in the early stages, it is easily ignored by people, and once

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symptoms start to surface, the cancer would have already to developed quiet rapidly into an advanced stage, making it difficult to treat. Furthermore, for the drugs used in liver cancer chemotherapy, this kind of primary cancer has an increased resistance. The medicinal properties, and the therapeutic effects of the drugs are not obvious, and the burden on the liver is further exacerbated. Therefore, the treatment methods and methods for this primary liver cancer in medical practice are still very limited [3].

For some patients who have been diagnosed with liver cancer, due to the late prognosis, cancer cells have or will be metastatic. In which case, surgical treatment will not be beneficial for patients with this type of cancer, therefore, a variety of non- surgical methods can be used. Treatment requires further research, especially in terms of the effects of molecular targeted therapy on cancer patients. This treatment method is a common in cancer treatment research. Research has found that Sorafenib in the treatment of cancer has a certain inhibitory effect, which can delay the degree of deterioration due to cancer, and at the same time can aptly extend the lifespan of cancer patients to a certain extent. The main aim of sorafenib treatment is to check the growth of tumour progression through its multikinase inhibitory activity [4]. The treatment of HCC is still a challenge for oncologists and researchers, Sorafenib remains the first line of defence available for use in cancer patients with progressive cancers. This research is based on the effects of Sorafenib in cancer patients, especially cancer patients in the middle and late stages of the disease.

Materials and methods

Research object

This research included 40 liver cancer patients who have been diagnosed with liver cancer and are in advanced stages. Among them, 36 were male patients and 4 were female patients. The patients were between 40 and 79 years of age, with an average age of 54.6 years of age. All the patients included in the study underwent the necessary examinations. Thirteen patients were identified as liver cancer patients after pathological examination, and the other 27 patients were diagnosed through clinical diagnosis [5]. The eligibility criteria included; a satisfactory heart function test (ECG), acceptable hematological function (hemoglobin count, platelet count, prothrombin time with international normalized ratio value), adequate hepatic function (albumin, total bilirubin, and alanine aminotransferase (ALT) and aspartate aminotransferase (AST)), proper renal functioning (creatinine, uric acid) had been closely monitored for all the patients included in the study. All these patients did not require surgery, and experts agreed that non-surgical treatment was better than surgical treatment.

Research methods

Selection criteria and medication methods

Liver cancer was diagnosed through biopsy of the liver, the patients' liver function was rated A or B, and all patients were diagnosed to have a survival period of more than three months after prognosis. Sorafenib was administered orally, in doses of approximately 450 mg each time, taken in a duration of one and a half months, which was considered as a cycle. Sorafenib was discontinued, or temporarily reduced to 200mg once a month, based on the symptoms presented, when patients presented with adverse reactions because of taking Sorafenib. [6]. The adverse reactions if or when presented were monitored and recorded daily, these were recorded in detail to inform future research. Tumours were assessed monthly to monitor the effects of Sorafenib.

The pathways of Sorafenib metabolism

Cytochrome p450 (CYP3A4) is responsible for oxidative metabolism and uridine diphosphate glucuronosyl transferase (UGT) 1A9 mediated glucourinidation metabolism are the two pathways of sorafenib metabolism in mammal liver. Reduced expression of CYP and UGT are associated with liver disorders. The Western blotting technique was used to detect the protein expression of CYP3A4 and UGT1A9.

Sorafenib indication for withdrawal

If the patient presented with uninterrupted gastrointestinal bleeding and urinary protein, severe diarrhoea, severe adverse reactions on the skin, hands and feet, and severe liver function failure during taking Sorafenib, Then Sorafenib was discontinued.

Treatment of Sorafenib Adverse Reactions

For patients with diarrhoea which occurred less than three times a day after taking sorafenib, the diarrhoea can be temporarily ignored. Prolonged systemic treatment of sorafenib may result in a series of adverse physiological effects including, hand and foot irritation-rashes, itching, diarrhoea, fatigue, and loss of appetite [20, 21]. After taking Sorafenib on time, patients should undertake a liquid only diet, and try to avoid eating spicy food. Food and milk are prohibited, if the patient's frequency is 5 times or more than 7 times a day, they should take some anti-diarrhoea drugs for corresponding treatment [7]. If the frequency of diarrhoea leads to dehydration, then it is necessary to add some water and electrolytes to ensure that the patient has a sufficient nutrient supply. For skin problems on the hands and feet of the patient, the patient should be kept in a sitting position or lying position to minimize the time spent standing. Furthermore, patients should wear some thick soft-soled shoes, and a fuse of about 2% of magnesium sulfate with water should be used to soak the patient's hands and feet. After soaking, some substances such as aloe gel can be applied on the patient's hands and feet to moisturize them.

Other adjuvant therapy

Upon experiencing adverse effects due to Sorafenib, the patient can be supplemented with some antibiotics or anti-inflammatory drugs, and then given some drugs to protect the liver and prevent diarrhoea. Herbal medicine, such as glycyrrhizin is an amazing hepatoprotective drug, applied to the patients of subacute liver failure. Interferon has also shown promising antifibrotic properties in trial. These drugs

are widely used for the inhibition of NF-kappaB and cytokines expression in HCC patient.

Nursing methods

The research participants for this study adopted the general routine care methods, utilized the conventional drugs that are usually used for pain relief, and then the physical condition of the patients was recorded daily. For the patients in the observation group, a comprehensive method was used for nursing, which includes, communicating with the patient as much as possible, so that the nursing staff can understand the psychological state of the patient more carefully, and then to conduct psychological and spiritual counselling according to the changes in the psychological and emotional state of the different patients, so that the patient can be mentally relaxed, and at the same time, due to the increased communication, patients can have more trust in the caregivers, and they can cooperate more efficiently with the caregivers' during treatment, so as to better restore the body. Subsequently, the diet of the patients' needs to be properly matched, because for these patients with advanced liver cancer, most of them do not like to eat, and their appetite is relatively low, and some even spit out food after eating, therefore it is imperative to ensure that patients acquire the necessary nutrients. End-stage HCC may create a state of dejection among the patients. This state needs to be carefully treated with proper mental and physiological health interventions. The use of a singing chair has been successfully implemented during the music therapy sessions. Improvisation of the quality life of HCC patients through complementary music therapy has positive effects on recovery due to the secretion of the happiness hormone [8]. Furthermore, due to the damaging effects of cancer on the body, it is imperative to include some high-protein and high-calorie, nutrient-rich substances to these patients' diets. These include foods which are light and easy to digest, as patients struggle to consume nutrient rich food and many suffer from a loss of appetite, making it difficult to introduce the necessary nutrients for the patients which further increases the burden on the body's gastrointestinal tract and other organs. Therefore, it is necessary to do a reasonable mix of food types and nutrition to enable patients to absorb all kinds of nutrients in a comprehensive and reasonable manner to achieve a healthy diet. Furthermore, patients with advanced liver cancer, require their living spaces to be clean, tidy, and warm to enhance their feelings of comfort and relaxation. A composition of good nutrition may decrease the chance of exposure to mutagens. Macro and micro nutrients along with vitamins have a significant role in maintaining good health. Aldehyde is the end product of alcohol, which causes serious degradation in liver cells. Overloading of Iron and high glycemic loaded food may contribute to the risk of HCC [22]. Additionally, due to patients with advanced liver cancer spending most of their time relaxing in bed, they require palliative care which includes, assistance with rotating their sleeping positions, providing comfort and care to prevent bedsores, and ensuring proper hygiene in always maintained [9]. In patients with severe liver and ascites, oxygen supply should be increased when caring for these patients, so that the patients can breathe more easily. Finally, the nursing staff should also provide medical guidance and spiritual comfort to the family of the patient, so that the family of these patients can have the necessary support and guidance when dealing with the patient, especially in terms of maintaining their composure in the presence of the patient, thereby enabling the family to be a form of comfort, support, and encouragement for the patient in their time of need.

Observation indicators

Tumours are monitored monthly, according to the treatment effect of the patient's tumour, and classified according to different degrees. Furthermore, the various adverse reactions produced by the patient during the treatment process are evaluated according to scientific methods. At the time of re-examination, the patients were examined with enhanced CT or MR imaging of the abdomen, coagulation function, liver function and other tests [10]. Two months later, the enhanced CT examination of the abdomen was performed. Except for Sorafenib, according to the different conditions after the examination. For treatments other than Fini, if there are no very serious adverse reactions, it is recommended that patients continue to take sorafenib to observe the therapeutic effect of sorafenib on these patients.

Statistical analysis

The use of scientific statistical software for statistics, analysis and comparison, the data are strictly in accordance with statistical data to record the statistical significance.

Results

Efficacy and adverse reactions

Among the 40 patients under study, one patient developed other diseases after taking Sorafenib for half the month and was forced to stop taking the drug [11]. There are no statistics on age, gender, and hepatitis background for these patients with advanced liver cancer, who were taking sorafenib. The academic significance of whether the pancreatic atrophy occurs after taking Sorafenib has a statistically significant effect.

Table 1. Univariate analysis results of prognostic factors in patients with advanced liver cancer

Feature	n	Mean survival time / month	P value
Age / year			
18~60	30	16.09	0.335
≥60	9	21.67	
Gender/case			
Male	35	17.27	0.685
Female	4	12.44	
Hepatitis background/case			0.413

HBV	33	16.63	
HCV	3	3.46	
HBV and HCV	2	8.27	
Without liver disease	1	22.9	
ECOG score/case			
1	31	16.35	0.688
2	8	16.11	
Child-Pugh Classification/case			
A	27	24.5	0.478
B	12	11.7	
BCLC/case			
B	6	17.01	0.078
C	33	15.34	
Cirrhosis/case			
Have	32	15.35	0.432
No	7	13.69	
AFP/case			
Normal	18	20.16	0.446
>20μg/L	21	14.89	
Pancreas atrophy/case			
Have	15	25.09	<0.001
No	24	8.41	

15 patients had pancreatic atrophy in varying degrees during the medication (Figure 1); 24 patients had a normal pancreas. The normal pancreas group and pancreatic atrophy group were compared into two groups. See Figure 2.

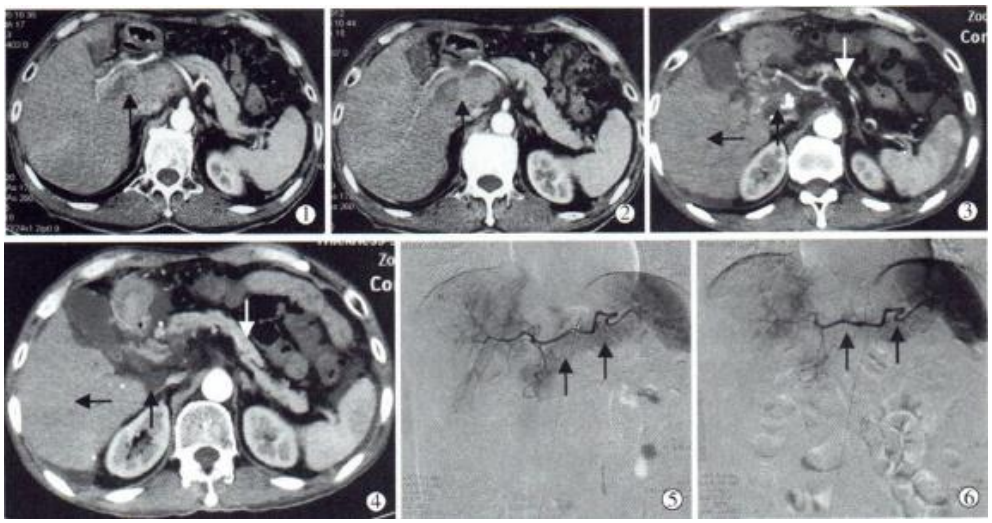

Figure 1. Patient male, 64 years old. Compared with Sorafenib before and after pancreatic atrophy

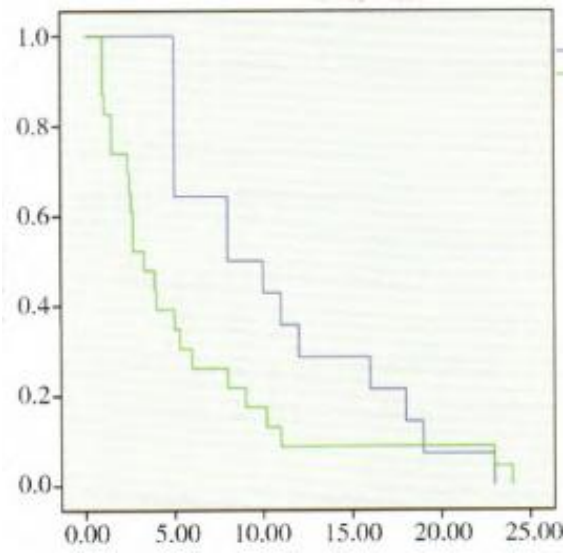

Figure 2. Comparison of survival curves between positive and negative groups

Observation on the effect of comprehensive nursing of two groups of patients

See Table 2, Table 3 and Table 4, respectively.

Table 2. Observe the negative emotions of the two groups of patients ($\bar{x} \pm S$, points)

Group	SDS		SAS	
	Before nursing	After nursing	Before nursing	After nursing
Observation group	57.12±6.16	38.58±522	55.43±6.92	41.04±538
Reference group	57.20±5.89	47.24±6.35	55.50±6.88	46.50±6.06
X^2	1.23115			
P	0.029			

Table 3. Compare the incidence of complications between the two groups of patients (%)

Group	Hemorrhage	Infected	Liver failure	Ascites	Complication rate
Observation group	6.91	3.46	3.46	3.46	13.80
Reference group	17.25	10.35	6.91	10.35	31.04
X^2			2.2336		
P			0.019		

Table 4. Comparing nursing satisfaction of two groups of patients (%)

Group	Satisfied	Basically satisfied	Dissatisfied	Satisfaction
Observation group	68.97	27.60	3.46	96.56
Reference group	44.84	31.04	24.15	75.87
X^2	1.21544			
P	0.030			

Discussion

Prognostic factors of sorafenib in the treatment of advanced liver cancer

The number of people with hepatitis B in our China is significantly high, and the incidences of liver cancer is also very high. According to incomplete calculations, the incidence of liver cancer in China is gradually increasing at a rate of about 5% annually, which sheds light on the significance of researching the control and treatment of liver cancer. At present, the treatment of liver cancer in China's medical practice is mainly a comprehensive treatment method [12]. This comprehensive treatment method has a certain degree of therapeutic effect on the treatment of liver cancer patients, but it has not greatly improved the metastasis of cancer cells and the recurrence rate of liver cancer and has the effect of molecular targeted therapy. Sorafenib is currently a very effective way to treat liver cancer cells.

The causes of liver cancer are relatively complicated. At present, there is no consensus in the medical community in terms of the substances that are solely responsible for causing liver cancer. Therefore, it is speculated that there is a direct relationship with mutations in our body's genetic organization and abnormalities in new-born cells and tissues. Our body has a complete set of signal transduction pathways. This pathway is essential for maintaining the normal operation of our body and the normal metabolism of cells. It plays a very important role. If this complete signalling pathway is restricted or interrupted, it may lead to the occurrence of malignant tumours. Therefore, protecting the complete signalling pathway in an

abnormal signal which cannot be transmitted is vital to combat the effects of cancer-causing cells caused by these disturbances to combat malignant tumours [13]. A major aspect of Sorafenib, is that it can effectively control the regeneration of tumour cells, which can extend the lives of cancer patients and improve the quality of life of these patients.

In the medical practice of western developed countries and China, it has been found that Sorafenib can slow down the growth of liver cancer cells, which can extend the life span of liver cancer patients, therefore Sorafenib is applied to patients with liver cancer in clinical practice and this treatment has become a trend in the treatment of patients with advanced liver cancer.

Of course, some patients will have a certain degree of adverse reactions after taking Sorafenib. These adverse reactions are mainly manifested in the changes in the skin of the hands and feet of the patients and the occurrence of diarrhoea. A small number of patients were taking Rafini, which can cause serious conditions such as gastrointestinal bleeding. Of course, these adverse reactions will gradually improve after targeted treatment.

However, due to the individual differences between people, some patients can clearly see that the tumour cells are controlled after taking Sorafenib, thereby extending the life span of these patients, but some patients are after taking Sorafenib did not achieve the desired effect, further research is required to discover the determinants of success in patients utilizing Sorafenib in order to ensure that there can be clear guidelines to help ensure the best possible outcome when utilizing Sorafenib. The treatment effect of lafenib in Asians and female patients and non-smokers is more obvious [14]. Additionally, some experts have found that patients with moderate diarrhoea after taking Sorafenib have better treatment effects on liver cancer. In clinical practice, it has been found that some patients utilizing Sorafenib have a certain degree of diarrhoea and pancreatic atrophy after taking it, however, Sorafenib plays a significant role and can effectively control the growth of liver cancer cells. To extend the life of patients with liver cancer. Sorafenib is now relatively expensive, if adverse effects can be observed and controlled effectively, then the treatment effect can be improved greatly, to reduce the financial burden of people who are not suitable for Sorafenib.

Based on the analysis of the studies above, it has been found that targeted therapy in combination with multiple methods for comprehensive treatment of patients with advanced liver cancer in the middle and late stages is a relatively good treatment for the treatment of advanced liver cancer in the middle and late stages. Treatment methods, and through thorough comparative analysis of the data, it has been found that patients who have severe diarrhoea and pancreatic atrophy after taking sorafenib can have a longer life compared to those who do not have severe diarrhoea and pancreatic atrophy. The phenomenon of slow development of cancer cells may also beneficial, but whether this phenomenon can be used as an index for the application of Sorafenib in patients with advanced liver cancer in the middle and late stages still needs further research and analysis [15].

Observation on the effect of comprehensive nursing for patients with advanced liver cancer

Judging from the current situation, the pathogenesis of primary liver cancer is relatively complicated. Genetics, hepatitis B and C, as well as aflatoxin and alcohol are all causative factors for liver cancer. Although alcohol is not directly responsible for causing carcinoma, but the damage of liver cells due to alcohol intake may encourage the development of fatty liver. Normal and non alcoholic fatty liver both have a significant role in the development of HCC. Primary liver cancer does not have any symptoms of discomfort in the early stages. When the patient's body has a certain degree of discomfort and patients go to the hospital for examination, it has often entered the middle or late stages, which is not conducive to early detection and early treatment of cancer. It is very easy for patients to miss the best time for treatment. At the same time, patients with liver cancer will also have some symptoms of cirrhosis in the early stage [16]. This is also a factor that causes doctors to misdiagnose and misjudge. Patients with liver cancer will have some complications after the middle and late stages, such as liver and kidney failure and haemorrhage, which seriously affect the treatment of liver cancer patients and pose a great threat to the quality of life and health of these patients.

Comprehensive care for patients with advanced liver cancer in the middle and late stages Provides comprehensive care from the mental state, psychological factors and physical state of the patient, so that the patient can be treated and rested in a comfortable environment with a relaxed mental state This is more conducive to patients who actively cooperate with medical staff to treat, and also pay attention to provide these patients with healthy and reasonable nutrition, by increasing the body's resistance, so as to effectively improve the quality of life of patients.

Conclusion

Based on the research and analysis, it is believed that comprehensive nursing for patients with advanced liver cancer, from the patient's psychological, physical and spiritual diet, and other aspects of scientific and reasonable nursing can effectively control and relieve all kinds of unhealthy emotions of patients ,associated with the burden of disease for those affected with cancer of the liver, so as to improve the confidence and courage of patients and to overcome the pain and the disease. The implementation of comprehensive nursing can effectively improve the quality of life of patients, by improving the confidence and determination of patients to overcome the disease, to help patients recover faster, and to reduce the pain caused by illnesses.

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