Observation of nursing effect for patients with primary liver cancer before and after transcatheter arterial embolization

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Abstract: To observe and analyze the nursing effect of primary liver cancer before and after transcatheter arterial embolization. The 200 patients with advanced primary liver cancer who had been treated in the Second People's Hospital of Huai'an were selected as research objects. All of them were applied with transcatheter arterial embolization. During perioperative period, nursing work was carried out for patients and the patients were explained with the method, purpose, results and cautions about the treatment; moreover, psychological nursing intervention, dietary intervention, auxiliary examination were performed. The postoperative puncture site and operative limb situations were observed and recorded for medication guidance. All patients were well treated. Adverse reactions after treatment mainly included liver area pain, digestive tract reaction, fever, which were relatively mild and effectively improved with timely medical measures, with no severe complications being left. Comparison of quality of life score and mental status score before and after nursing showed significant difference, $p<0.05$. To guarantee a smooth and successful implementation of transcatheter arterial embolization for patients with primary liver cancer, the key is to develop a scientific and comprehensive nursing mode to improve curative effect.

Keywords: Primary liver cancer, transcatheter arterial embolization, comprehensive nursing care.

INTRODUCTION

Clinically, primary liver cancer is a common malignant tumor. With the change of living mode, environment and dietary structure, the number of patients with primary liver cancer has been on a rise in recent years (Thenmozhi *et al.,* 2018). Currently, the most common treatment method for such disease is surgical resection. However, as most cases of primary liver cancer are in advanced stage, the recurrence rate after surgery is high and some patients also get liver cirrhosis. The resection rate of early liver cancer is only 20-30%, and most of cases require non-surgical scheme (Zhang and Wang 2018; Li *et al.,* 2015; Ma 2015).

At present, existing researches on the etiology and pathogenesis of primary liver cancer have not reached unified conclusion (Peng *et al.,* 2017). It is well recognized that the primary liver cancer is associated with liver cirrhosis (fig. 1), viral hepatitis (fig. 2), aflatoxin (fig. 3) and environment factors. For patients who have missed the best opportunity for surgical resection or have no operation indications, the main treatment approach is to transcatheter arterial embolization, which can prolong the survival time on one hand, and restore opportunity for surgical resection for some patients on the other hand.

During implementation of transcatheter arterial embolization, scientific nursing care is of vital importance (Peng *et al.,* 2016; Tuhanioglu and Erkan 2017). In this study, the nursing effect of primary liver cancer before and after transcatheter arterial embolization was investigated, which provides valuable guidance for practical nursing.

MATERIALS AND METHODS

General design

200 patients with primary liver cancer who had been treated in the hospital (the Second People's Hospital of Huai'an*)* during May 2014 to March 2018 were selected as research objects. This paper has a rigorous structure, and the conclusion has been approved by relevant ethics and relevant departments. The patients meet inclusion criteria included those who meet the "clinical diagnosis and staging criteria of primary liver cancer" prescribed by Chinese Society of Liver Cancer, Chinese Anti-Cancer Association, those who accepted clinical and imaging examination, such as ultrasonic B, CT, MRI, hepatic arteriography, PET, serum alpha-fetoprotein determination (Nouso *et al.,* 2016; Asayama *et al.,* 2017); and those without contraindication to surgical treatment. The selected patients enjoyed the right to know and signed informed consent form. The patients meeting the exclusion criteria included those accepting other anti-tumor treatments recently (within one month); those suffering severe heart, liver and kidney dysfunction; those having jaundice, ascites, cachexy, and multi-site metastases; and those patients with poor compliance. Of all 200 selected patients, there were 122 males and 78 females, with median age of 50.6 ± 3.2 years old, ranging from 30 to 75 years old.

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Surgical treatment

Before treatment, intramuscular injection of 10mg of diazepam was given as usual for surgical site disinfection and local infiltration anesthesia. Puncture intubation was conducted via arteria cruralis beat area of right groin according to Seldinger technique. Under the Xray scan or CT guidance, the tumor site was clearly determined to which the catheter was extended. The feeding artery of tumor was found, into which the chemotherapeutic drugs were injected. The interventional therapy drugs used for liver cancer included cisplatin, hydroxyl glycyrrhizin, epirubicin, mitomycin, brucea jananica oil injection, arsenic trioxide injection and elemene, and iodipin with concentration of 40%. According to the actual disease condition, the combined application of two or three drugs accompanied with iodipin was injected into blood vessels.

Fig. 1: Liver cirrhosis

Fig. 2: CT imaging of viral hepatitis

Nursing methods

First, preoperative nursing method is necessary. Basic nursing: establishing a harmonic patient-doctor relation, helping patients to know ward environment, keeping the ward clean, making patients feel safe and comfortable; dietary nursing: instructing patients to take semi-liquid diet 1 or 2 day before operation, the diet should be light and easy to digest, prohibiting patients to drinking water for about 5h; mental nursing: establishing a sound communication with patients and knowing their mood condition, making targeted measures to eliminate anxiety, tension, anxiety, panic, depression of patients, telling patients with knowledge about their disease, and letting them know the purpose, method, effect and cautions of the treatment, so as to remove their fear and improve their confidence and compliance.

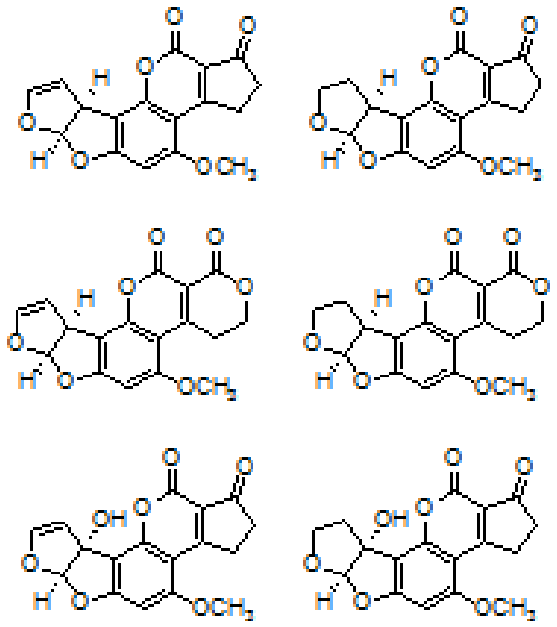

Fig. 3: Chemical formula for aflatoxi

Second, postoperative nursing method: Closely focusing patients' disease conditions and monitoring their vital signs including respiratory rate, blood pressure, pulse, heart rate, body temperature; forcing the patients to take strict bed rest for 24 h, any abdominal pain or peritoneal irritation should be informed to doctor in time. Particular nursing care should be given to puncture site and affected limb. The postoperative puncture site needs to be bound up for 12 h, and then taking bed rest for 24 h, puncture site bleeding and hematoma are forbidden. Keeping the right leg immobilized for 8h, examining the skin temperature and color. massaging the lower limb to prevent thrombosis; monitoring body temperature and instructing patients to drink more water, physical cooling and drug cooling should be conducted in time if the body temperature is over 39°C. Observing the gastrointestinal reaction. High concentration of chemotherapy drugs has stimulation and toxicity to gastrointestinal tract, emboliaztion agents may backrush to peripheral artery of the duodenum, which will cause gastrointestinal mucosa stimulation and acute gastrointestinal reaction, thus resulting in nailing, nausea and vomiting. Therefore, the patients should be instructed to take light diet, if emesis occurs, patient's head should title to one side to prevent from aspiration and causing cough or choke. Performing

Table 1: Adverse reactions [n]

Case number	Digestive tract reaction	Liver area pain	Fever	Total number
200	40	22	25	87

Table 2: Comparison of quality of life score before and after nursing ($\bar{x}$ ± s)

Time	Case number	Physiological function	Mental function	Social function	Total quality of life score
After nursing	200	0.97 ± 0.32	1.30 ± 0.52	1.29 ± 0.15	4.81 ± 0.55
Before nursing	200	0.43 ± 0.29	1.01 ± 0.05	0.82 ± 0.23	3.26 ± 1.20
t		3.58	5.31	5.09	8.36
p		< 0.05	< 0.05	< 0.05	< 0.05

Table 3: Comparison of SAS score and SDS score before and after nursing ($\bar{x}$ ± s)

Time	Case number	SAS score	SDS score
After nursing	200	41.70 ± 4.25	40.61 ± 2.80
Before nursing	200	48.92 ± 5.05	48.65 ± 3.86
t		9.72	6.51
p		< 0.05	< 0.05

finger pressing or acupuncturing at "Zusanli", "Neiguan" to eliminate digestive tract symptoms (Jin *et al.,* 2017; Zhang *et al.,* 2016). Good nursing care should be given to the function of liver and kidney; fluid infusion should be applied regularly before operation; recording urine output and observing urine color after operation, and maintain urine output around 2500 mL.

Finally, rehabilitation guidance. In the phase of postoperative rehabilitation, metal nursing should be strengthened to increase patients' rehabilitation belief and make them maintain positive mood (Gong *et al.,* 2017). In addition, instructing patients to take appropriate exercise to improve immunity, and teaching them heath knowledge via rehabilitation-propaganda to prevent postoperative complications. Moreover, making sure patients take medication, diet, rest and reexamination strictly as prescribed (Dong *et al.,* 2016).

Observation indexes

The adverse reactions were recorded. The mental status (anxiety scores, depression scores) and quality of life before and after nursing were compared.

STATISTICAL ANALYSIS

SPSS21.0 software was used for statistical analysis. The measurement data was expressed in the form of mean ± average (± s), and intergroup difference was compared by t test. The enumeration data was expressed by natural number (n) and percentage (%), and the intergroup difference was tested by $\chi 2$. The difference was of statistical significance when $p< 0.05$.

RESLUTS

Adverse reactions

As shown in table 1, the adverse reactions mainly included liver area pain, digestive tract reaction, fever, which were relatively mild and effectively improved with timely medical measures, without causing severe complications, such as puncture site bleeding, hematoma, deep venous thrombosis, etc.

Comparison of quality of life score before and after nursing

As shown in table 2, it can be seen that the quality of life score after nursing is significantly higher than that before nursing, $p< 0.05$, with statistical significance.

Comparison of SAS score and SDS score before and after nursing

As shown in table 3, the SAS score and SDS score after nursing are higher than that before nursing, $p<0.05$.

DISCUSSION

In this study, patients were given a scientific and comprehensive nursing program, including preoperative nursing methods. The purpose is to form a harmonious relationship with patients, help patients understand the ward environment, and do a good job in ward hygiene cleaning, good diet care, strengthen psychological care, explain the knowledge about the disease, let patients know the treatment goal, method, effect, matters needing attention and so on. After the surgery, the patient's condition should be closely monitored, and they should be

informed to have absolute bed rest for 24 hours after the surgery. The puncture site and the affected limb should be well cared for. The right lower limb should be immobilized for 8h. The patient's body temperature should be closely monitored, and their liver and kidney functions should be cared. Rehabilitation guidance refers to postoperative guidance of appropriate exercise to improve immunity. All the cases in this study were successfully treated. The adverse reactions after treatment included pain in the liver area, gastrointestinal reaction and fever, but the symptoms were relatively mild, which were effectively improved after timely treatment without serious complications. There was significant difference in the scores of quality of life and mental state before and after nursing, $P<0.05$. To ensure the smooth implementation of hepatic artery infusion chemotherapy in patients with primary liver cancer, scientific and effective and comprehensive nursing mode should be adopted.

One of the main measures to treat advanced primary liver cancer is transcatheter arterial embolization. Drugs are injected into local liver tumor side via catheter, which can greatly increase the blood concentration of chemotherapeutics around liver tumor and thus exert good cytotoxic effect to liver tumor cells. In addition, adverse reaction caused by vein chemotherapy should be prevented. A scientific nursing work is the key to guarantee the smooth implementation of transcatheter arterial embolization. Therefore, the preoperative preparation work should be improved and real-time monitoring of vital signs of patients should be conducted to prevent emergency situations. Standard nursing operation should be carried out to prevent complications, increase patients' quality of life and accelerate their rehabilitation.

CONCLUSION

To guarantee smooth implementation of transcatheter arterial embolization for patients with primary liver cancer, scientific and comprehensive nursing mode should be developed to improve curative effect. This nursing mode can prolong patients' survival time and improve their quality of life, which is of great application value.

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