Nursing Care of a Patient with Liver Cirrhosis and Esophageal Variceal Bleeding after TIPS Procedure

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Abstract: Objective: To analyze the application effect of comprehensive nursing care in a patient with liver cirrhosis and esophageal variceal bleeding after undergoing transjugular intrahepatic portosystemic shunt (TIPS) procedure, and its role in preventing surgical complications. Methods: A retrospective analysis was conducted on the clinical nursing care of one patient with liver cirrhosis and esophageal variceal bleeding admitted to our hospital. After diagnosis, the patient underwent elective TIPS procedure and received comprehensive nursing care postoperatively. The feasibility of this nursing approach in clinical application was evaluated based on the resolution of nursing problems and the achievement of nursing goals following the implementation of care. Results: The patient recovered well after surgery. During the postoperative hospital stay, the patient developed a Klebsiella pneumoniae infection, which was managed with symptomatic treatment, and the patient was safely discharged. Conclusion: The implementation of comprehensive nursing care in patients with liver cirrhosis and esophageal variceal bleeding after TIPS procedure can actively promote recovery and reasonably control the risk of complications through a holistic analysis of the patient's nursing needs and the comprehensive application of targeted nursing interventions.
***Keywords*:** liver cirrhosis; esophageal variceal bleeding; TIPS procedure; comprehensive nursing care

1. Introduction

Esophageal variceal bleeding is a common and severe complication in patients with liver cirrhosis and liver cancer, characterized by massive hemorrhage that poses a significant threat to patients' lives. Transjugular intrahepatic portosystemic shunt (TIPS) procedure, as the primary treatment for this complication, can effectively reduce portal pressure by establishing a shunt pathway within the main venous route in the diseased area, with proven therapeutic efficacy. However, due to factors such as underlying diseases, invasive surgical manipulation, and surgical stress, patients face a high risk of postoperative complications and related adverse outcomes. Therefore, active and feasible postoperative nursing measures are necessary to optimize the quality and safety of patient recovery [1-2]. Against this background, we specifically analyzed the application effect of comprehensive nursing care in a patient with liver cirrhosis and esophageal variceal bleeding after TIPS procedure, and its role in preventing surgical complications. The details are as follows.

2. Case Presentation

The patient (Gu **), male, aged 60, was admitted to our hospital with the chief complaint of "confirmed hepatocellular carcinoma and liver cirrhosis for 6 months, and recurrent hematochezia for more than 3 months". The patient reported that in November 2023, he was diagnosed and treated at a local hospital for "cough". Chest CT revealed a space-occupying lesion in the right lobe of the liver, and he was diagnosed with "primary hepatocellular carcinoma". He subsequently underwent TACE combined with targeted immunotherapy. After treatment, he developed hematochezia, with an estimated daily volume of approximately 4–8 g, lasting for two weeks. He later developed hepatic encephalopathy after excessive egg consumption, which improved with conservative treatment at the local hospital, and he was discharged. From March 1, 2024 to April 2, 2024, he experienced persistent hematochezia, which was dark red in color. After colonoscopy, it was considered that diffuse intestinal oozing caused by portal hypertension was the most likely diagnosis; therefore, TIPS procedure was performed at that hospital, and there was no further hematochezia after the surgery. Prior to this current admission, he again passed melena, and a diagnosis of "decompensated liver cirrhosis, hepatocellular carcinoma, and gastroesophageal variceal bleeding" was considered. After receiving blood transfusion and hemostatic agents, his hematochezia still worsened, accompanied by decreased blood pressure and fatigue, and he was transferred to our department. Since the onset of the illness, the patient has had poor mental status and sleep, poor appetite, and weight loss. The patient has a definite history of hepatitis, a clear history of smoking, no known allergies, no family history of tumors, and his children are healthy. Preoperative examinations indicated that the patient had concurrent ascites, bilateral pleural effusion, and decreased white blood cell and platelet counts.

3. Clinical Nursing Care

3.1 Prevention of Early Postoperative Bleeding Risk and Bleeding Monitoring

Due to the severe bleeding symptoms caused by esophageal variceal rupture in the patient, surgical trauma may exacerbate bleeding and, by affecting coagulation function, increase the risk of postoperative secondary bleeding, thereby compromising the safety of postoperative recovery. To address this issue, after the patient returned to the ward postoperatively, the responsible nurse and the operating room nurse were required to conduct a detailed handover of the intraoperative status. Based on preoperative examination findings, the bleeding risk was comprehensively assessed using the HAS-BLED bleeding risk assessment scale, and the risk was re-evaluated after the postoperative examination reports were available the next day. Within 48 hours after surgery, the patient's vital signs and facial color changes were closely monitored. In case of abnormal blood pressure drops or pallor, the physician was to be informed immediately for consultation and management[3]. During postoperative treatment, dual venous access was established as per physician's orders to administer volume resuscitation, blood product transfusions, and hemostatic therapy, actively preventing postoperative bleeding.

3.2 Prevention of Postoperative Infection Risk

Due to factors such as preoperative immunocompromise caused by the underlying disease, surgical trauma and stress, and indwelling urinary catheterization, the patient faced a high risk of secondary infection postoperatively. The responsible nurse was required to dynamically monitor the patient's body temperature changes every 4–6 hours and collect peripheral venous blood samples as needed for laboratory testing of infection markers. If persistent fever or abnormal infection marker data were detected, the physician was to be notified for consultation. During the postoperative treatment period, perineal cleaning and external cleaning of the catheter surface were actively performed for the indwelling urinary catheter to prevent urinary tract infection. If edema of the urethral meatus occurred, wet compresses with nitrofurazone solution were applied. During the patient's postoperative hospitalization, laboratory tests indicated a Klebsiella pneumoniae infection; immediate isolation was implemented, and nurses were required to thoroughly clean and replace the ward environment and items, as well as to strictly adhere to hand hygiene and aseptic technique before medical interventions to control the risk of other nosocomial infections.

3.3 Preventive Nursing Care for Postoperative Cardiac Dysfunction and Hepatic Encephalopathy

The cardiac function changes were measured on a daily basis in the course of postoperative intravenous infusion therapy according to the test results of myocardial injury markers. The amount of fluid and rate of infusion was adjusted individually to ensure that there is a balanced status of cardiac volume. The patient was put under strict bed rest, and drug therapy was given as prescribed to avoid secondary cardiac dysfunction. In hepatic encephalopathy, dynamic evaluation of consciousness was done within 72 hours following surgery and peripheral venous blood samples were taken every 24 hours to measure blood ammonia levels. During active control of blood ammonia by drugs, dietary protein intake was limited, and greater consumption of dietary water, fiber, and trace elements was promoted to avoid constipation and keep electrolyte balance.

3.4 Prevention of Thrombosis and Pressure Injury Complications

The Caprini risk assessment score on the first postoperative day was moderate (6 points). The patient could not be given anticoagulant therapy, because of the possible bleeding after surgery; so she had to exercise in bed, raise her arms and supine cycling and ankle pump exercises. As the condition of the patient became stable, it was recommended that the patient should increase the fluid intake to a moderate level to enhance the blood hypercoagulability. The pressure injury risk analysis result was also high (12 points) on the 1st postoperative day. It was necessary to have the nurse to help the patient to turn every 2-3 hours. When the pressure injury score was at least 13 points, then the time between turning would be increased by 4-6 hours. A mattress that was anti-decubitus was used in order to avoid the occurrence of pressure injuries as well as Mepilex foam dressing which is used to cushion the bony prominences were applied and Sufratulle which is skin protectant was placed over the cleaned skin. In this time frame, nutritional interventions were done with the aim of enhancing immune responses and nutritional status as well as preventing the occurrence of postoperative infection and pressure ulcer through individualized nutritional support intervention including oral nutrition and intravenous nutritional support.

4. Results

The patient did not experience any bleeding, cardiac failure, encephalopathy of the liver, thrombosis or pressure injury during the postoperative treatment period and his condition was stable. The fever on the 7th day after the operation was accompanied by a maximum temperature of 39.1 degree Celsius. It has been diagnosed with an infection of Gram - negative bacillus (Klebsiella pneumoniae). Following clinical isolation and symptomatic therapy, the patient got better and was

released to home on the 13th day of the post-operative care.

5. Discussion

The underlying disease in this patient was complicated with hepatocellular carcinoma on a background of liver cirrhosis as the main pathology. At the time of presentation, the patient had been experiencing hematochezia more than 3 months ago and it gave an opportunity to esophageal variceal bleeding due to liver disease. Once confirmed by specialized tests, elective TIPS procedure was done to manage bleeding and minimize the chances of serious adverse consequences and complications associated with continued hemorrhage. The patient was at high risk of early hepatogenic complications, coagulation-related complications such as bleeding, and secondary infections during the postoperative period because of the factors like hepatic dysfunction resulting due to the underlying disease, surgical trauma, physical and psychological stress, and therefore, early preventive intervention was necessary. Furthermore, postoperative rehabilitation included supportive therapy (which was not applied), anticoagulation (not used here) and activity limitations which increased the risks of thrombosis, pressure injury, and infection that needed specific management in nursing care to maximize the recovery foundation of the patient after surgery. According to the analysis above, we provided all-inclusive nursing care depending on the clinical features of the patient and the nursing assessments. Following this nursing collaboration, the patient was safely recovered and discharged showing clear effectiveness of intervention.

6. Conclusion

There are a number of risks of surgical complications and adverse outcomes following TIPS procedure in patients with liver cirrhosis and esophageal variceal bleeding because of the underlying liver disease, bleeding, invasive treatment procedures, and low baseline health status. The realization of comprehensive nursing care by means of extensive evaluation and analysis of the patient postoperative recovery and safety management needs, as well as by active implementation of different nursing interventions, offers a viable basis to achieve positive postoperative results.

References

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