Nursing of Artificial Liver Support System in the Treatment of Severe

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Abstract: *Objective:* Research on nursing method of artificial liver support system applied in severe hepatitis patients. *Methods:* Selected 50 severe hepatitis patients in our hospital during the period of January 2018 and January 2019, observed and analyzed the clinical intervention effect of all treated by artificial liver support system cooperating with related nursing methods. *Results:* After the treatment, the clinical symptoms and abdominal distension of the patients were relieved, whose spirit took a turn for the better and the jaundice subsided. Among these patients, 68% got improved enough to be released, 26.00% gave up for financial concerns and 6.00% died. Before and after treatment, the patients' PT and INR, APTT, TT improved obviously, and the difference were quite a lot ($P<0.05$), while ALT and ALB showed few without any statistical significance ($P>0.05$). *Conclusion:* During the treatment and intervention of severe hepatitis patients with artificial liver support system, effective nursing interventions are needed, mainly including completely preoperative, intraoperative and postoperative care so as to ensure the treatment effect and promote the recovery of intervention, which has remarkable significance to clinical development.

Severe hepatitis is a serious viral hepatitis disease with 60% to 70% mortality, which is relatively high. Artificial liver support system is usually used in clinic treatment, it is mainly to clear all metabolites and corresponding endotoxins, harmful cytokines and inflammatory mediators, promoting the supplementation of numerous bioactive substances proteins or thrombinogen, insuring the improvement of the patient's internal environment and promoting liver cell regeneration to provide advantages for liver function recovery[1]. This study is aimed at speeding up the application of artificial liver support systems and exploring effective nursing methods based on the above.

1 Patient data and research method

1.1 General data

50 severe hepatitis patients were selected in our hospital during January 2018 and January 2019, 33 of them were male and 17 were female, whose age ranged from 22-78, the average was (35.45 ± 4.34) years old. Among these severe hepatitis patients, there were 2 chronic and acute cases, 5 subacute cases, 40 chronic cases, 2 acute cases, and one drug-induced.

1.2 Research method

Apparatus: The main use of beijing Weili 8888 blood purification system and MPSO5,EC-20W PLASMA separator Meantime, select plasma perfusion adsorption column with the Extracorporeal circulation using AR-350single -use anion resin plasma adsorption column and blood purification devicecircuit for plasma exchange as well as ABLE hemodialysis circuit with single needle double lumen tube into use.

All patients were provided with liver-protection therapy, jaundice subsiding and ALSS treatment. Took the reality of patients into consideration, applied pure plasmapheresis and bilirubin adsorption to exchange plasma for 127 times. If use bilirubin adsorption, it is just need to absorb 26 times combined with 1 to 6 times, 2.25 times on average ALSS treatment, exchange

2500-3000ml plasma each time within 3 to 4 hours, control the adsorption time at 4 to 5 hours. Meanwhile, Pre-flushing pipeline with 1500-2000 mlheparin brine set and adjusted the required parameters, making sure the corresponding blood flow at 60-100ml / min, and the plasma separation speed should be limited at 25-30ml / min. In the end, analyzed and compared clinical symptoms and patients' hematological indices before and after treatment.

1.3 Statistical methods

The data in this study were performed statistical analysis with the tool statistical software SPSS 20.0. The comparison results of the measurement data ($\chi \pm s$) were verified by t-value, and the comparison results of the count data (n, %) were verified by χ^2-value. The result showing $P<0.05$ indicates the statistical analysis value of the difference between-group[2].

2 Results

After the treatment, the clinical symptoms and abdominal distension of the patients were relieved, whose spirit took a turn for the better and the jaundice subsided. Among these patients, 68% got improved enough to be released, 26.00% gave up for financial concerns and 6.00% died. Before and after treatment, the patients' PT improved obviously, and the difference were quite a lot($P<0.05$), while ALT and ALB showed few progress without any statistical significance ($P>0.05$).

Table 1. Comparison of changes in different indicators of patients before and after treatment ($\bar{x} \pm s$)

Time	TBIL(μmol/L)	PT(s/L)	ALT(U/L)	ALB(g/L)
Pre-treatment(n=50)	465.55±281.24	25.45±10.75	146.55±85.30	33.35±4.11
Post-treatment(n=50)	279.04±115.45	16.55±5.33	122.05±61.22	35.06±6.85
χ^2	109.245	192.334	4.294	0.956
P	<0.05	<0.05	>0.05	>0.05

3 Nursing care

Preoperative care: Before the operation, it is essential to give their psychological care, learning about the patient's mental health situation, communicating with them actively to ensure they stay positive about the disease and reduce anxiety, worry, etc. For ALSS treatment, it needs to be used many times accompanied by high risk and overpriced treatment cost. Nursing staff need to introduce the necessity and method of ALSS to the patient, helping them be confident about the treatment and improving therapy compliance[3]. Next, prepare for the application of ALSS special treatment room. What need to do before operation are as follows, implement ultraviolet disinfection in the room, disinfect the floor with chlorination of 2000 mg/L, adjust the inside temperature and humidity. In addition, the return line should be installed in advance, make certain aseptic operation, prepare, and check related surgical supplies. At the same time, evaluate the patients' condition such as checking up coagulation function, blood routine and renal function and liver function.

Intraoperative care: Ensure aseptic operation and skin preparation for the puncture site. Sterilize the puncture site, perform femoral venous catheterization at 0.5 cm inside the groin artery of the patient to stitch the catheter and the skin tightly, observe the vital signs carefully during treatment, and monitor the plasma reflux speed. [4]. Secondly, take care of possible adverse reactions during the operation, for example, find the plasma allergic reaction as soon as possible, which mainly occurs late during treatment, give the patient intramuscular injection of promethazine with the dose of 25mg. Use 5mg dexamethasone by intravenous bolus, and slow down the blood flow rate, provide conventional treatment after the patient's symptoms disappear. Figure out whether the patient has hypocalcemia, which mainly shows hand and foot twitching, perioral, limb numbness, etc. The patient needs to be treated with Clinical use 20ml 50%glucose solution and 10ml of 10% calcium gluconate, cooperating with hot compress and massage. Moreover, pay attention to the bleeding at the puncture site, and try to succeed in puncture once. Fix the catheter effectively and instruct the patient to take care of the affected limb when the treatment is done[5].

Postoperative care: First, patients need catheter care that absolutely staying in bed within 24 hours after the operation. Second, effective psychological care is also in need for patients, explain postoperative precautions to them and check venous catheter to avoid infection or other problems. During the catheterization period, make sure sterilization of the room, open the windows for ventilation regularly, and limit the visits in case of cross

infection. Change dressing of intubation point with the iodophor disinfection of puncture point. Apart from this, reduce the indwelling time of the catheter as much as possible and remove it immediately once infections occur. [6]

At the same time, provide patients with dietary care, patients' bilirubin levels will decrease, so effective control of the diet is required. Then the high-calorie, easy-to-digest food can be provided when the patient's condition is stable.

In conclusion, in the treatment and intervention of severe hepatitis patients with artificial liver support system, they need effective nursing interventions, including comprehensive care before, during and after operation. Making sure the treatment effect and promoting patients' prognosis recovery mean a great deal to clinical development.

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