

Clinical Nursing of Septic Shock Caused by Ureteral Calculi Complicated with Pyonephrosis

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Abstract: Objective To explore the clinical nursing of septic shock caused by ureteral calculi complicated with pyonephrosis. Methods From July 2015 to July 2018, 15 patients with septic shock caused by ureteral calculi and pyonephrosis were selected and their clinical treatment and nursing methods were summarized. Results After active anti-septic shock treatment, the patient's condition improved without serious complications. All patients were discharged smoothly after one-stage operation. Conclusion The patients with septic shock caused by ureteral calculi complicated with pyonephrosis should be closely observed, early detection, early anti-shock treatment, timely and effective control of the deterioration of septic shock, and promote the early recovery of patients.

1. Introduction

Ureteral calculus is a common and frequently occurring disease in urological diseases, most of which are renal calculus discharged into the ureter. Ureteral calculi leading to pyonephrosis and septic shock is one of the most serious complications of ureteral calculi. Its clinical onset is concealed, rapid progress, easy to ignore, and septic shock has a high mortality in clinic. It is a kind of circulatory disorder syndrome, which poses a major risk to the life of patients ^[1]. The mortality rate can be exceeded over 20%^[2], the treatment is usually passive. From July 2015 to July 2018, the nursing of 15 patients with septic shock caused by ureteral calculi and pyonephrosis were summarized as follows.

2. Data and Methods

2.1. General Information

Fifteen patients with septic shock caused by ureteral calculi complicated with pyonephrosis were selected from July 2015 to July 2018. There were 10 females and 5 males aged 33-68 years. All patients showed lumbar pain accompanied by fever and chills. Urinary CT or color Doppler ultrasonography showed ureteral calculi with hydronephrosis. There were 8 cases on the left side and 7 cases on the right side. The patients' body temperature was 39.0-40.0 degrees, blood pressure was 70/50 mmHg-90/70 mmHg, pulse heart rate was 100-120 times/min, accompanied by pallor, cold extremities, sleepiness and poor consciousness. Blood and urine routine leucocytes and procalcitonin were significantly increased. Blood and urine cultures showed 6 cases of Escherichia coli, 9 cases were negative. 15 cases were confirmed pyonephrosis by renal puncture and drainage.

2.2. Method

Antishock treatment after definite diagnosis of septic shock includes broad-spectrum antibiotics, fluid resuscitation, and pressor drugs (norepinephrine is the first choice). After admission, urinary color Doppler ultrasonography or CT showed moderate to severe hydronephrosis. Renal puncture were given to drain purulent fluid.

3. Treatment and Nursing

3.1. General Monitoring Indicators

The main manifestations of septic shock are insufficient perfusion of tissues and organs, ischemia and hypoxia of the body. Patients may have indifferent expression, uneasiness, sleepiness or coma, pale complexion, cold limbs, progressive decrease of blood pressure, increased heart rate, shock index more than 1, increased respiratory frequency, often more than 20 times per minute, accompanied by there is less urine or even no urine. [3] The patient has a shock position, head and trunk elevation 10-20 degrees, lower limbs elevation 20-30 degrees, increase the volume of cardiac return blood, increase cerebral blood flow, mask high flow oxygen inhalation, conducive to breathing, reduce tissue hypoxia^[4]. The patient's temperature should be monitored and measured every 4 hours. When there is insufficient perfusion of tissues and organs in the whole body, the infection should be further aggravated and the doctor should be actively reported so as to avoid missing the best treatment window.

3.2. Monitoring of Drainage Tube and Catheter

All patients were given indwelling catheterization and renal puncture and fistula, properly fixing catheter, keeping unobstructed, recording the amount of urine per hour and confirming the catheter unobstructed. When the amount of urine was more than 30 ml/h, the symptoms of septic shock improved. Renal puncture and fistula drainage of pyonephrosis not only reduces intrarenal pressure and protects renal function, but also helps to control infection.

3.3. Application of Vasoactive Drugs

Norepinephrine is the first choice of vasoactive drugs for blood pressure reduction in septic shock patients. According to the initial blood pressure dose of 1.0ug/Kg.min, the dosage is gradually increased, and the average arterial pressure is not less than 65 mmHg, so as to ensure the blood supply of important organs. Attention should be paid to drug exosmosis to avoid drug extravasation leading to local tissue necrosis. In this group, the blood pressure was maintained between 100/65-110/80mmHg with vasoactive drugs.

3.4. Application of Antibiotics

The key to the treatment of septic shock lies in the application of highly effective broad-spectrum antibiotics. After admission, patients can be given Imipenem and Cilastatin Sodium for Injection (TIENAM) every 6 hours after blood culture and urine culture. After the results of blood and urine culture were reported, sensitive antibiotics were timely adjusted according to the results of drug sensitivity, so as to avoid the imbalance of organism flora caused by long-term application of TIENAM

3.5. Fluid Resuscitation

Correcting pulse velocity, pulse compression and hypotension are the basic goals of septic shock treatment. In this group, three intravenous pathways were established to actively resuscitate the fluid. According to the principle of "crystal-gel ratio is 2:1" and "quick-slow" fluid infusion, 30 ml/kg of intraocular lens was given at the beginning of 15-30 minutes. Vasoactive drugs were given without significant increase in blood pressure (norepinephrine was the first choice). During the fluid infusion period, we should pay attention to whether the patient has cough, expectoration (pink foam sputum) and shortness of breath, so as to avoid the occurrence of pulmonary edema. If necessary, central venous catheterization can be given to monitor central venous pressure, fluid infusion and the application of vasoactive drugs to maintain central venous pressure at 8-12 cmH₂O.

3.6. Psychological Nursing

While actively treating patients, we should also communicate with patients and their families in a timely manner. On the one hand, we should inform patients' family members of the progress of the disease, on the other hand, we should enhance patients' and their families' confidence and sense of security in treatment, and strive for the active cooperation of patients and their families.

4. Results

After 24-48 hours of active anti-septic shock treatment, the patient's condition gradually improved and his vital signs were stable. After 48 hours, all patients stopped using vasoactive drugs. Fifteen patients underwent ureteroscopic lithotripsy and indwelling double tails in one stage. They were discharged smoothly 3-5 days after operation.

5. Discussion

Urinary calculi is a common disease in urology. Ureteral calculi is one of the common diseases of urinary calculi^[5]. It usually causes clinical symptoms such as lumbar pain, hematuria, nausea, vomiting, fever and so on. The pyonephrosis and septic shock caused by urinary obstruction caused by ureteral calculi are serious complications and the high mortality rate is often overlooked by people. Early clinical treatment and nursing of disease development is the key to prognosis. Renal puncture and fistula can relieve urinary obstruction, lower intrapelvic pressure, reduce renal injury, and control infection effectively^[6]. It is an effective treatment method. Especially in the golden period of treatment at the first 6 hours of septic shock, it is necessary to reach 1.8-12 mmHg central venous pressure (CVP); 2. (3) urine volume > 0.5 ml/kg/h; (4) ScvO₂ > 70% or SvO₂ > 65%^[7]. Therefore, medical staff must be skilled in mastering the clinical characteristics and changes of septic shock, so that early detection and timely provision of positive and reasonable clinical intervention can effectively control the further deterioration of septic shock. Nursing staff should actively do a good job in anti-shock treatment, so as to achieve early prevention, early detection and early treatment. At the same time, they should pay attention to the psychological care of patients and their families, so as to accelerate the early recovery of patients.

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