

Application and nursing of invasive blood pressure monitoring in ICU

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Abstract: *Objective: To explore the application and nursing effect of invasive blood pressure monitoring in ICU. Methods: a total of 44 patients admitted to ICU in our hospital were selected as the research objects, all from July 2019 to October 2020. we explored the catheterization skills, monitoring methods and effective nursing measures for various complications, so as to summarize their advantages and nursing points. Results: The indwelling time of the 44 patients with catheterization was 3-5 days. During the indwelling period, there were 3 patients with catheterization, 8 patients with catheterization blockage, and 2 patients with puncture point penetration. No serious catheter infection, arterial thrombosis and other complications occurred. Conclusion: the application of the invasive blood pressure monitoring in ICU can accurately present the patients blood pressure change, provide reliable basis for clinical diagnosis and treatment, and during the period of blood pressure monitoring must do a good job in nursing, so as to enhance the monitoring effect, the dynamic response in patients with blood pressure change, thus effectively to ensure the safety of patients and reduce complications.*

Keywords: *Invasive blood pressure monitoring; ICU; nursing*

ICU as an important form hospital, it usually treated patients were more severe illness patients, patients in the ICU is mostly caused by various reasons of one or more organs and system dysfunction, after it is life threatening patients with these risk factors, the patient need to provide the system and the high quality of medical care and treatment. Hemodynamic monitoring is the main points of the rescue and treatment of critically ill patients, blood pressure monitoring is one of the most basic way of clinical, nature also received more attention, and blood pressure monitoring work carried out in time, usually without a monitoring and invasive monitoring, this article is to have a blood pressure monitor application in the ICU, and care for the following inquiry:

1. Data and methods

1.1. General Information

A total of 44 patients admitted to ICU in our hospital were selected as the research objects, all from July 2019 to October 2020. The number of male and female cases were 24 and 20 respectively. The age range of patients was 35-67 years old, with an average of (53.45 ± 3.64) years old. There were 12 cases of craniocerebral disease, 16 cases of 17 cases, 10 cases of celiac disease and 5 other cases. All patients in this group were critically ill patients who underwent invasive blood pressure monitoring due to hemodynamic instability and/or the use of vasoactive drugs. During invasive blood pressure monitoring, 29 patients were catheterized through radial artery, 13 patients were catheterized through dorsal foot artery, and 2 patients were catheterized through brachial artery.

1.2. Pressure measurement method

The 44 patients were all invasive blood pressure monitoring and nursing care, in the process of pressure, you need to pressure sensors placed in the right atrium in patients with the same level, the patient lay down a flat axillary midline between 4 ribs, on the arm in the same plane position, pressure transducer connecting suite with invasive arterial blood pressure monitoring function of ecg monitor, use hand hold inflatable ball, Set the pressure bag to a pressure greater than or equal to 300mmHg ($1\text{mmHg}=0.133\text{kPa}$), use the cuff pressure to drain the air from the rinse solution, and then flush the entire piping system. Open the pipeline, close the three-way artery segment of the pressure sensor, so that the gas-liquid plane can communicate with the atmosphere, press the zeroing function key on the monitor for zeroing treatment, and then close the three-way, so that the patient's arterial blood pressure

can be continuously monitored.

2. Results

In this case, the indwelling time of the 44 patients with catheterization was 3-5d. During the indwelling period, there were 3 patients with catheterization, 8 patients with catheterization blockage, and 2 patients with puncture point penetration. No serious catheter infection, arterial thrombosis and other complications occurred.

3. The nursing

Invasive blood pressure monitoring in the radial artery as the first choice of puncture, the main reason is because superficial radial position and fixed, with high success rate of puncture, and also facilitate fixed and observation after puncture, at the time of puncture, assuming that see blood spray needle, the means have accurate puncture, need to trim needle pressure in time, When inserting the needle, the needle should be slowly injected 2mm, the cannula should be sent forward, the needle core should be pulled out in time, and the ejecta pulsating blood should be touched. This result indicates that the puncture is relatively good, and the measuring device can be properly fixed and connected. In the process of blood pressure monitoring, it is also necessary to wash the pipeline regularly to avoid blockage of the pipeline, so as to effectively ensure the accuracy of blood pressure detection; After the operation of side pressure pipe blood collection, it is necessary to immediately end the flushing pipe to avoid the occurrence of congealed blood blocking the pipe. After the pipe is properly fixed, it is necessary to replace it in time if it is found to be polluted. The study process, according to the results of the 44 patients with catheter indwelling time is 3-5 d, 3 patients appeared during the catheter indwelling tube phenomenon, appeared a catheter tube jam, 2 cases with the puncture point penetration patients appeared in 2 cases, and 1 patients appeared catheter tube jam, no serious catheter complications such as infection, arterial thrombosis. This was due to the effective control of the patient's blood pressure due to invasive blood pressure monitoring and appropriate ICU care during the monitoring.

When invasive blood pressure monitoring is used in ICU, the following nursing care needs to be performed :(1) strictly aseptic procedures. When the blood collection work is carried out, the catheter joint can be strictly disinfected with 2% chloridine gluconate skin disinfectant, and the pressure tube system needs to be kept sterile. The normal saline in the pressurized bag must be replaced regularly for 24h. The puncture site also needs to be sterilized strictly. Once there is local bleeding and seepage, it needs to be replaced immediately. (2) Ensure that the pressure tube is usually used to ensure the correct value of arterial blood pressure. In the nursing process, properly fix the cannula, extend the tube and pressure measuring body, avoid the tube because of compression or distortion, avoid leakage of pipe and other situations, ensure that the connection of the pressure measuring tube is tight, the three-way also need to maintain good function, so as to ensure that the salt water in the pressure measuring tube can drip into the uniform speed. (3) Prevention of complications. In the nursing process of invasive blood pressure monitoring, the prevention of complications is a very important component. After all, some complications often occur when catheters are indwelled, so the following points need to be done during the nursing: First, thrombosis prevention nursing. ICU patients due to repeated puncture, easily lead to subcutaneous hematoma situation, so in the process of nursing care personnel must master puncture skills, promote a success rate of puncture, avoid repeated puncture was carried out on the patients with vascular, if encounter during piercing phenomenon of blood clots, requires pulls out, also need to do maintenance on a regular basis for pipeline processing. Second, hematoma prevention. After the puncture, there was no effective compression on the puncture department, so the compression on the puncture site was extended after extubation, and local pressure dressing could be carried out when necessary. At the same time, 50% magnesium sulfate was used for wet hot compress. Third, prevention of arterial hemorrhage. Considering that some joints, pipelines sometimes fall off and other phenomena, so in the nursing period also need to fix the pipeline, for patients with more obvious agitation can be properly restrained, to avoid its contact with the pipeline. Fourth, infection prevention. The causes of infection are many, and in the process of nursing it is necessary to pay close attention to patients, so as to effectively reduce the occurrence of infection.

4. Conclusion

To sum up, the application of the invasive blood pressure monitoring in ICU can accurately present

the patients blood pressure change, provide reliable basis for clinical diagnosis and treatment, and during the period of blood pressure monitoring must do a good job in nursing, so as to enhance the monitoring effect, the dynamic response in patients with blood pressure change, thus effectively to ensure the safety of patients and reduce complications.

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