

Study On The Improvement Of Precise Transfer Process For Critically Ill Neonates

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Abstract. Objective To improve the nursing strategy of critically ill neonatal transport and provide guidance for neonatal transport nursing through the study of critically ill neonatal transport. Methods From January 2020 to July 2023, according to the specific requirements and management regulations of epidemic prevention and control, our hospital established a strict and standardized transport plan, carried out transport tasks for 472 newborns who met the transport indications, and organization and management in the transport process; full security protection policy ;the improvement of transport quality and psychological support of family members were studied and analyzed. Results All 472 neonates arrived at the transport hospital safely, their condition did not worsen, their vital signs were stable, and the accompanying medical personnel and drivers did not have infection symptoms. Conclusion This study concluded that in the process of critically ill neonatal transport, the corresponding quality improvement was made in all aspects, which significantly improved the safety of transport during the epidemic period, met the needs of primary hospitals, ensured the life treatment of critically ill children, and maintained the integrity of the medical system.

Keywords: Neonates; transfer; first-aid; nursing strategy; infection.

At present, 79.24% of the infant mortality rate in China is newborn death, and actively and effectively doing newborn first aid and transport can significantly reduce the neonatal mortality rate, thus reducing the infant mortality rate in China [1]. Professional neonatal transport team can improve neonatal survival rate, effectively improve prognosis, and reduce the occurrence of adverse events [2]. Due to the imbalance of medical level in different regions, some critically premature infants are at risk of death because they cannot enjoy high-quality medical resources in time, which increases the mortality rate of newborns. Especially at the end of 2019, the sudden epidemic swept the world, and at the same time, the transport of critically ill newborns faced huge challenges. From January 2020 to July 2023, a total of 472 critically ill newborns were transported in our hospital, which improved the quality of the process of accurate transport and provided experience for transport work in emergencies. The experience is reported as follows.

1. Pre-transshipment preparation

1.1 Preparation of personnel before transshipment

1.1.1 Establishment of a transshipment steering group

The supervision group includes: 1 medical dean in charge, 1 director of infection department, 1 director of neonatology, 1 head nurse, 1 night shift professor and 1 night shift nursing leader. The director in charge assesses the transport risk and opens the green channel; The director of the infection department shall conduct overall control of the epidemic; The director of the neonatology department guided the medical treatment during the transit, understood the changes in the condition, communicated with the family members to inform the transit process; The head nurse of neonatology department arranges the transfer personnel to confirm the standby status of the instruments, the items are complete and within the validity period; Night shift professors guide night shift transfer treatment and communicate with family members appropriately; The night shift nursing team leader should prepare the necessary instruments and items in advance during the night transfer to ensure that they are in good condition.

1.1.2 Transit team member

The transport team is composed of doctors, nurses and drivers, and the doctor as the leader is the commander of the transport task. The selection of personnel conditions are, the doctor has worked for more than 5 years, the nurse has worked for more than 5 years in charge of the nurse, according to the characteristics of the disease of children, as appropriate to arrange pediatric surgeons to transport together. Participants should be qualified to transport critically ill newborns and undergo strict training [1].

1.2 Preparation of instruments and articles before transfer

Before transfer, oxygen cylinders, batteries, monitors, infusion pumps, ventilators, incubators and other instruments should be equipped with emergency batteries, and can be properly fixed with emergency vehicles. Before receiving the patient, preliminarily adjust the parameters, turn on the machine, and preheat the incubator in advance. The equipment and drugs in the first aid box shall be prepared in accordance with the requirements of "2016 Chinese Newborn Resuscitation Guidelines", and personalized items and drugs shall be prepared according to the resuscitation guidelines and the individual characteristics of the children, and the number shall meet the requirements for rescue use.

1.3 Pretransit risk prediction and assessment of disease changes

After receiving the transfer request from the local hospital, understand the basic information of the child, including gestational age, weight, disease course, maternal pregnancy history, delivery record, Apgar score of 1-5-10 minutes, etc. Based on the examination done, especially chest film, blood image, blood gas, etc., the basic condition of the child, gastrointestinal feeding, respiratory, circulation and other system conditions, the current ventilation mode, cerebral hemorrhage, whether surgery is needed, etc., were assessed. According to the drugs used by the child and the current physical condition, the severity of the disease is analyzed, and the treatment is guided remotely or the transport is prepared immediately. If the decision is made to transfer, the doctor should immediately communicate with the family of the child in detail, understand the medical history, and report to the hospital for the record, and start the green transport path. According to local management regulations, analyze and discuss the specific plan for docking newborns, including docking location, division of labor during docking, illness handover, and family communication. Due to the immature development of the newborn immune system, special attention should be paid to the vertical transmission route of mother-to-child [3]. According to the disease degree of children, analyze their possible course of disease, predict possible sudden problems, formulate first-aid strategies, and prepare emergency measures in advance. Pay attention to traffic safety at night, and add two drivers if necessary.

2. Quality improvement program

2.1 The quality improvement of the docking process for children

Depending on the actual situation, the docking point can be a highway intersection, outside the hospital, or beside the bed of the local ward. The local medical staff is responsible for the detailed introduction of the condition, answering the questions of the transport doctor, assisting in the preparation of rescue drugs, the opening of venous access, and cooperating with the contact of family members. After arriving at the destination, the transport team promptly handed over the condition of the children to the transport receiving unit, checked the vehicles, equipment and drugs, and improved the transport verification form[4]. The transport medical staff checked the condition of the children and the results of various laboratory tests, assessed gastrointestinal function and bleeding tendency, monitored blood sugar and blood pressure, observed changes in vital signs, checked the skin and limb conditions of the children, and ensured smooth venous access. The

nursing staff is responsible for checking the newborn's information and skin condition together with the nursing staff transferred from the medical institution, and filling in the handover nursing record form [5]. Local medical staff should stand on the right side of the bed, the transfer doctor on the head side, and the transfer nurse on the left side of the child, so as to facilitate examination and handling of special cases. The transport doctor should communicate with the family members about the condition of the child, inform the risk factors of transport, and sign the transport notification letter if there is no family member in the transport vehicle during the epidemic period. After docking is completed, the director of the department is informed of the situation of the child, and the safety of the transport is comprehensively evaluated, and the return journey is set out.

2.2 Life safety management in transit

After docking the newborn, the initial transport plan was quickly adjusted according to the actual situation of the child, which met the current treatment requirements of the child. Implement safety measures according to the plan, immediately place the child in the transport incubator preheated by the emergency vehicle, connect the ventilator and monitor, and the doctor quickly adjust the parameters of the ventilator according to the condition of the child. Comprehensive thermal insulation measures such as adjusting the temperature of the ambulance medical cabin and the temperature and humidity of the warm tank in advance, pre-insulation, local insulation, constant temperature humidification oxygen therapy and constant temperature heating infusion can maintain the stable body temperature of the children [6]. The nurse put on the monitor for the child, adjusted the temperature box parameters, fixed the ventilator pipeline, and checked the patency of the veins. Doctors check the body condition of the child and adjust the treatment plan in time; Prepare medications that may be needed on the way and connect them in time if necessary; Assess the risks that may occur along the way and give appropriate preventive measures. According to the doctor's advice, the nurse quickly prepared rescue drugs and connected the child's veins; Kangaroo nursing is given to children to reduce the gap between children and the incubator, increase the sense of security, and protect children in turbulence. When the newborn's vital signs are stable and the system status of the body is gradually adapted, the vehicle is started for the return journey. On the way, focus on observing the changes in the condition, timely adjusting the treatment plan, and timely communicating with family members and department leaders about the progress of the condition. The driver ensures safe driving and returns to the transfer hospital ward quickly. After entering the urban area, contact the department in time, make preparations for the next step, and ensure that the program is seamless.

2.3 Family psychological support

In the face of the epidemic, family members have worries and fears about the disease, and the risks on the way can't be predicted. These situations increases the anxiety of family members. In the process of rescue and treatment of children, medical staff tends to ignore the tense and anxious emotions of family members [7]. With a patient attitude, the staff informs the potential risks objectively in advance, and these approaches increase the psychological preparation of family members, and it is better able to understand and cooperate in emergencies. Set routine account for the condition of the patient frequency every two hours; if the condition changes, the replacement frequency is changed to every half hour; If there is an emergency rescue, the condition can be explained every ten minutes, and the condition can be completed by the department leaders and the transport doctors, so as to help understand the ideological dynamics of family members, explain and appease the emotions of family members. Family members who can't accompany in hospital due to the epidemic can account for their illness through telephone or Internet, and can also arrange online videos to understand the ward and condition of children.

2.4 Establish green channel

The green transfer program was activated in the hospital before the ambulance left. After understanding the situation of the patients and their families, the critical degree was quickly assessed and the corresponding treatment plan was formulated. Determine the best transfer route for transfer vehicles to the NICU to ensure the shortest distance and minimum number of people to reach the transfer site [5]. The nurses of the department will conduct triage, confirm the admission diagnosis, and assist in the admission procedures. Without accompanying patients, nursing staff help to handle the admission procedures on behalf of the family, patiently guide the medical insurance procedures, the overall process to achieve the first admission after procedures, first rescue after payment and other green channels. After the opening of the green channel, the newborn has not arrived at the hospital, and the admission procedures have been completed, waiting for the transfer of the newborn. Communicate with family members in a timely manner, inform the latest services and regulations of the hospital, and answer questions encountered. Children enter the hospital, immediately carry out pre-hospital emergency procedures, continue to complete rescue until safe return to the ward. By standardizing and optimizing neonatal transport, safe and rapid transport can reduce delayed treatment and improve the treatment effect of critically ill newborns [8].

2.5 Disinfection method and implementation plan after completion of transport

After the completion of transport, ambulance vehicles, transport equipment and personnel equipment should be disinfected immediately in accordance with the Technical Specification for Disinfection of Medical Institutions (WST367-2012) and in light of the epidemic characteristics. After the transfer, the air, surface, floor and instrument surface in the ambulance shall be disinfected [9]. Disposable therapeutic supplies should be selected as far as possible. Medical instruments, utensils and articles that must be reused should be dedicated by special personnel, and terminal disinfection should be carried out after use [10].

3. Summary

Under the sudden epidemic situation, the transport of critically premature infants is difficult and risky, and the safe and timely transport of critically premature infants from primary hospitals to neonatal intensive care units of tertiary hospitals for treatment is an important link in the emergency work of premature infants, which cannot be suspended due to the epidemic. After the implementation of the two-child policy, the establishment of a regional treatment network for critically ill newborns is of great significance in reducing child mortality [9]. Accurate assessment of disease conditions, adequate preparation of transport instruments, equipment and drugs, timely treatment of adverse events during transport, as much as possible to shorten the transport time, so that newborns receive continuous monitoring and treatment [11]. This study studied transport indications, organization and management, protective strategies, work processes, and psychological support of family members, and proposed countermeasures to improve the quality of transport care for critically ill premature infants under sudden outbreaks, providing guidance for the transport care of premature infants.

References

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