



Application of Video Demonstration and Education in the Recovery Period of Infants with Congenital Diaphragmatic Hernia after Discharge

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Abstract: Objective — To explore the application effect of video demonstration and education in the recovery period of infants with diaphragmatic hernia after discharge. Methods — 59 infants with congenital diaphragmatic hernia admitted to our department from January 2019 to December 2020 were selected as the research objects, and were divided into the control group and the study group according to the time of video demonstration and education. The control group was given routine discharge education and nursing; the study group was given video demonstration and education on the basis of routine nursing. The respiratory symptoms and weight changes of the two groups of infants, the Perceived Stress Scale (PSS) of the parents of the two groups of infants, and the mastery of nursing knowledge of the two groups of parents were compared. Results — Respiratory complications in the observation group were less than those in the control group; the weight of the infants on the day of discharge and one month after discharge was higher than that in the control group. The difference was statistically significant ($P < 0.05$). The perceived pressure of parents in the observation group after discharge was lower than that in the control group; the parents of the observation group had higher knowledge of nursing than the control group. The difference was statistically significant ($P < 0.05$). Conclusion — Video health education and education by broadcasting videos can effectively improve the mental health of the mothers of infants and reduce the incidence of complications. It is worthy of clinical use.

Keywords: video demonstration and education, congenital diaphragmatic hernia, continuous nursing

1. Introduction

Congenital diaphragmatic hernia is a critical disease in neonatal surgery. The pathological changes are mainly bronchopulmonary dysplasia, decreased number of alveoli, enlarged alveolar sacs, and decreased alveolar surface area. Even after the infants are cured and discharged from the hospital, they often get worse and even die due to repeated respiratory infections or symptomatic pulmonary artery ducts and heart failure. People with severe lung injury died due to progressive respiratory failure and pulmonary hypertension^[1]. Therefore, health education at the time of discharge is particularly important, which can improve their quality of life and reduce the occurrence of related complications. The domestic epidemic has rebounded from time to time, and strict implementation of infection prevention and control measures in medical institutions^[2] is essential to minimize the risk of infection. Based on the current epidemic situation, the neonatal intensive care unit adopts an unaccompanied mode^[3]. Discharge publicity basically adopts oral publicity and leaflets on the day of discharge. Video has the advantages of being intuitive, vivid and easy to understand^[4]. In January 2020, our department provided oxygen therapy, respiratory care, and nutritional support for the families of discharged infants through video demonstration and education, and achieved good results. The report is as follows.

2. Materials and methods

2.1 Clinical materials

59 infants with congenital diaphragmatic hernia admitted from January 2019 to December 2020 were selected as the research objects, with an average of (3.2 ± 1.6) h. Inclusion criteria: meeting the diagnostic criteria for congenital diaphragmatic hernia and receiving surgical treatment — thoracoscopic diaphragmatic hernia repair. Exclusion criteria: postoperative death due to complications. According to the time of video demonstration and education, they were divided into control group and study group. There was no statistically significant difference in general information between the two groups ($P > 0.05$), and they were comparable.

2.2 Methods

The control group was given routine discharge education and nursing methods.

On this basis, the study group was given video demonstration and education. (1) Develop a video education plan.

According to the changes in the infants' condition, a targeted guidance plan will be formulated, and the parents will be trained accordingly to enable them to master the basic skills of caring for the child. The content of video missions mainly includes two parts. The first part focuses on disease-related knowledge, including body position, body temperature, observation of respiratory function, sputum suction, feeding, growth and development, etc. The second part is the basic nursing knowledge of breastfeeding, bathing, changing diapers, and buttocks. (2) Shoot missionary videos. The director of the department is asked to evaluate the scientificity and effectiveness of the health education content and video, and finally confirm that the video is officially put into use. (3) Send the video. Before the infants are discharged from the hospital, send the video education content after discharge to the parents through WeChat to let the parents know about back pat, sputum suction, oxygen inhalation, blood oxygen saturation monitoring, respiratory function exercise, nutrient addition, growth and development test indicators, etc. (4) Pay attention to continuity. After the infants are discharged from the hospital, if the parents encounter related problems, they can contact the nursing staff in time via WeChat or phone.

2.3 Evaluation indicators

(1) Comparison of the respiratory symptoms of the two groups of infants.

(2) Comparison of the weight changes of the two groups of infants.

(3) Perceived Stress Scale (PSS) of the parents of the two groups of infants. The PSS scale^[5] was compiled by Cohen in 1983 and is currently a tool widely used internationally for self-stress measurement. The scale is composed of 14 items, using a 15-level scoring method, and the total is divided into the sum of the scores of all items. The higher the score, the greater the perceived pressure. Among them, when the total score of PSS is 0-28, 29-42, and 43-56, it is considered that the perceptual pressure is in the normal range, the perceptual pressure is high, and the perceptual pressure is too high.

(4) Comparison of the mastery of nursing knowledge between the two groups of parents.

2.4 Statistical processing

Use SPSS20.0 statistical software. The comparison of enumeration data adopts the χ^2 test of two independent samples. The comparison of measurement data adopts t test. The inspection level $\alpha = 0.05$.

3. Results

3.1 Comparison of the respiratory symptoms of the two groups of infants

See Table 1 for details.

Table 1. Comparison of respiratory symptoms between the two groups of infants

Group	Number of cases	Respiratory tract infection	Difficulty breathing before admission
Control group	28	12	6
Study group	31	3	2
χ^2		4.836	-1.875
p		<0.05	<0.05

The study group had fewer respiratory complications than the control group, and the difference was statistically significant ($P < 0.05$).

3.2 Comparison of the weight changes of the two groups of infants

The weight of the infants in the study group was higher on the day of discharge and one month after discharge than the control group, and the difference was statistically significant ($P < 0.05$). See Table 2 for details.

Table 2. Comparison of the weight changes of the two groups of infants ($\bar{x} \pm s$, kg)

Group	Number of cases	On the day of discharge	1 month after discharge
Control group	28	2.3±0.9	3.1±1.0
Study group	31	2.6±0.5	4.1±0.8
χ^2		10.658	10.003
p		<0.05	<0.05

3.3 Comparison of conscious pressure among parents of infants

See Table 3 for details.

Table 3. Comparison of conscious stress among parents of infants

Group	Number of cases	On the day of discharge	1 month after discharge
Control group	28	38.3±0.9	22.1±1.6
Study group	31	37.9±0.5	16.8±0.8
x ²		0.535	7.136
P		0.772	<0.05

After the infants were discharged from the hospital, the conscious pressure of the parents of the study group was lower than that of the control group, and the difference was statistically significant (P<0.05).

3.4 Comparison of the mastery of nursing knowledge between the two groups of parents

See Table 4 for details.

Table 4. Comparison of the mastery of nursing knowledge between the two groups of parents

Group	Number of cases	Position	Body temperature	Observation of respiratory function	Feeding	Growth and development
Control group	28					
Study group	31					
x ²		3.899	5.663	7.212	-0.812	-3.568
P		<0.05	<0.05	<0.05	<0.05	<0.05

The parents of the study group had higher master level of nursing knowledge than the control group, and the difference was statistically significant (P<0.05).

4. Discussion

(1) The infants need more professional and meticulous care after being discharged from the hospital. The family members lack the ability to care for infants with diaphragmatic hernia, and the infants are seriously ill after birth, and surgery and treatment will cause great damage to the body. They are often more likely to have recurrent respiratory infections than ordinary newborns within two years after birth^[6]. What is more, some infants developed respiratory failure and were admitted to the infants' intensive care unit for treatment. Therefore, parents must closely observe the neonatal hypoxia symptoms, and closely observe whether the child has complexion, cyanosis of the lips, labored breathing, and three-concave inhalation. Timely symptomatic treatment can significantly reduce the incidence of respiratory infections^[7]. In addition, parents should also master more accurate and effective nursing knowledge, such as having oxygen machines and portable blood oxygen saturation monitoring equipment at home, using intermittent oxygen inhalation, and transitioning to stop oxygen inhalation.

(2) Intermittent hypoxia and slow weight gain are extremely detrimental to lung development and repair. In addition to the observation of respiratory function, feeding is also extremely important. Due to the low calorie reserves of newborns, under the action of the disease, the gastric containment function is significantly reduced, which increases the body's calorie consumption and is prone to hypoproteinemia^[8]. Therefore, it is necessary to gradually increase the amount of breastfeeding. During the feeding process of the infants, pay attention to observe whether there are symptoms such as cyanosis and shortness of breath. Oxygen therapy is given when breastfeeding. It is necessary to pay attention to the combination of "eating and stopping" to avoid hypoxia^[9].

(3) Infants have a relatively long period of hospitalization for surgery, and they are separated from their parents for a long time, which will adversely affect the parent-child relationship. After the infants are discharged from the hospital, parents are very prone to have anxiety and difficulties in parenting. Perceived pressure level can reflect the size of individual psychological pressure. Parents are worried about the health of their babies after experiencing mother-infant separation, and they often have a lot of psychological pressure^[10]. The results of this study showed that the overall perceived pressure of the two groups of premature women was in the "higher pressure" range at the time of discharge, and the difference between the two groups was not statistically significant (P>0.05). With the support of video education,

the difference in the overall perceived stress level of the parents of the two groups of infants was statistically significant ($P < 0.05$).

(4) Reasonably arrange the breathing exercise time to determine whether the child can tolerate the breathing exercise. If the child has phlegm sound, he should tap his back in time to discharge phlegm. Note that the movements should be gentle, with a frequency of 100 times per minute. You need to knock your back along the bronchus rhythmically, from bottom to top, from outside to inside. At the same time observe the infants' complexion, breathing and other conditions^[11]. If necessary, a cotton swab can be inserted into the child's mouth to stick the secretions out. Position before breastfeeding: Raise the head of the child by 30°, in a head-high-foot-low position or a left-side lying position. After breastfeeding, choose the right decubitus position, and stick to the prone position for 30 minutes. The lateral position can enhance the strength of the diaphragm, improve the contraction ability of the diaphragm, and regulate the ventilation function of infants^[12]. Prone position can reduce the occurrence of atelectasis and other conditions. Malnutrition hinders the growth, development and repair of the lungs, so adequate energy and nutrient intake are particularly important. Start to supplement adequate calcium, phosphorus and vitamin D as soon as possible.

(5) Discharge does not mean the end of treatment and management, but the beginning of a new mode of treatment and management. Taking care of discharged newborns at home is another new challenge for parents of newborns. Some surveys show that parents have a low mastery level of home care skills for the newborn, and especially they lack practical skills for common problems. Health education for the families of discharged infants is imperative^[13]. Video demonstration and education use modern multimedia video tools for missions. Video demonstration and education can be carried out from multiple dimensions. The information transmission is simple and direct, which improves the compliance and acceptance of patients' families. The self-made multimedia video can aim at the doubts of the parents of the infants, and use easy-to-understand language to help the family members understand the necessary nursing knowledge.

5. Conclusion

Video demonstration and education is a new type of education model that has emerged in recent years. This kind of demonstration and education mode mainly teaches health knowledge through video broadcasting, which makes up for the shortcomings of traditional oral demonstration and education. It can not only effectively improve the mental health of the mothers of the infants, but also help the infants to reduce the occurrence of complications, and it is worthy of clinical use.

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