Effect of Continuous Nursing on Nursing Effect, Quality of Life and Satisfaction of Children with Pneumonia

YANAN LIU, H. REN[1], JING GUO AND DAN SU*

Department of Pediatric Internal Medicine, [1]Department of Rehabilitation Medicine, Hebei Hengshui People's Hospital, Hebei Hengshui 053000, P.R. China

To explore the effect of continuous nursing intervention on children with pneumonia, survival status and nurse-patient relationship, 90 patients with paediatric pneumonia admitted to the Hebei Hengshui People's Hospital from May 2017 to June 20, 2017 were divided into the regular group and the continuous group according to the order of admission. Each group had 45 children. The routine group received general care and the continuity group received continuous care and compared with the previous group to observe the correlation between the nursing effect, clinical symptom improvement time, quality of life, satisfaction and complications of the two groups. The probability of effectiveness in the continuous group was 95.55 %, which is higher than the other group's 75.55 %. The two groups were meaningful (X^2=4.094, p<0.05); the duration of body temperature decline in the continuous group (1.75±0.65), cough remission time (4.24±1.12), lung rales remission time (4.15±0.89) and shortness of breath relief (2.65±0.65) were less than the routine group temperature drop time (2.85±0.95), cough relief time (5.95±1.85), lung rales remission time (5.68±1.25) and shortness of breath relief (3.45±0.75). The time changes in the 2 groups were increased (p<0.05); before the nursing, the living conditions of the 2 groups were small (p>0.05). After the nursing, the above factors were increased in both groups (p<0.05), and the continuous group improved better (p<0.05). The satisfaction degree of the two groups was 41 (91.11 %), 33 (73.33 %), the difference between the 2 groups was large (p<0.05); the side effects during the 2 groups of care 8.89, 26.67 %; the two groups had a change (p<0.05). Continuous care helps children with pneumonia to improve disease, reduce the time of pain, reduce medical disputes, reduce heart muscle and lung failure, and is worthy of application.

Key words: Pneumonia, continuous care, effect, satisfaction, complications

Pneumonia is a common clinical disease. Children's body defense ability is weak, external bacteria and viruses enter the body, resulting in a series of common clinical symptoms such as fever and dyspnea[1]. Because of the incomplete development of organs and the narrow lumen of organs in children with pneumonia, unreasonable treatment will aggravate the condition and even increase the probability of death[2]. The reference shows that there are many causes of pneumonia, such as lack of nutrition and seasonal alternation. According to big data, about 350 000 children die of pneumonia annually in China. With the changing times, it is required that the nursing mode should also keep pace with the times to improve the condition of children with pneumonia[3]. Continuous nursing is a new type of nursing mode based on scientific theory, which changes the traditional model of stopping nursing after discharge. By designing a series of nursing programs, targeted nursing methods can be carried out for patients at different places[4]. Continuous nursing in hospital can guide patients to strengthen the treatment effect, reduce the occurrence of dangerous accidents and improve the rehabilitation ability and prognosis of children through continuous follow-up such as discharge guidance[5]. Continuous post discharge nursing is a part of the whole nursing plan, which can avoid the aggravation of the disease after discharge, reduce the economic burden of patients, and improve the quality of life[6]. However, there are only a few reports on continuous nursing in China, so this paper evaluated the effect of continuous nursing on the nursing effect, quality of life and satisfaction of children with pneumonia.

From May 2017 to June 2019, 90 children with pneumonia in the Hebei Hengshui People's Hospital

***Address for correspondence**
E-mail: zvgbtt1157@163.com

hospital were divided into 2 groups. The admission number was the regular group and the double number was the continuous group, with 45 cases in each group. The general data of the 2 groups were comparable ($p>0.05$), as shown in Table 1. This study was approved by the ethics committee of our hospital.

Inclusion criteria were, in line with the diagnostic criteria for pneumonia in children[7], fever and other phenomena and X-ray detection of lung shadow. The exclusion criteria included those who do not cooperate with the treatment; those who have cognitive mental disease and organ disease; and those who have incomplete clinical data.

General nursing care was to keep the inpatient clean and ventilated in time, test the children's life characteristics, ensure enough rest and keep the amount of daily activities. While, continuous nursing method focuses on the long-term care of children. On the basis of the routine group, the patients are continued to be given daily care for a certain period after operation. The nursing contents are as follows.

Diet guidance was provided to children with pneumonia and fever, which included proper drinking water and good eating habits should be established, mainly including protein, vegetables and vitamins, so as to ensure adequate nutrition. However, it is necessary to prevent breathing difficulties caused by excessive eating, mainly focusing on less food and more number of meals and to keep eating in the sleeping position, with light and slow movements, so as to reduce the occurrence of choking.

Respiratory tract care was provided which is as follows, check whether there is secretion in the throat of the child in time, and inform the child or the family member the correct method of sputum discharge, guide the parents to gently pat the child for sputum discharge, and use atomization to help sputum discharge if the sputum discharge is not smooth.

Psychological guidance was provided, to explain the knowledge and precautions of children's pneumonia to their families, reduce the occurrence of prolonged illness due to unclear family living conditions, because of emotional instability caused by physical discomfort of children with pneumonia, it is easy to cry, the nursing staff combined with parents patiently care, divert attention, help to establish a good state and encourage treatment.

Discharge nursing guidance included, impart knowledge to understand the disease and precautions for the children's family members and continue the eating habits followed in the hospital, such as eat less and eat more times, supplement protein, and improve the children's body function. At the same time of sufficient rest, pay attention to the weather and indoor air flow and carry out appropriate outdoor sports. However, in autumn and winter cold season, avoid the crowd to reduce infection.

According to the curative effect standard for evaluation of children's pneumonia[8], significant effect means the clinical symptoms and phenomena are all relieved and X-ray examination shows no inflammatory reaction; effective means the above clinical phenomena are partially eliminated, and X-ray examination shows partial inflammation reduction and ineffective is when the above symptoms have no change or aggravation.

The clinical symptom relief time of patients in routine group and continuous group after nursing was recorded, including fever and dyspnoea. Before and after nursing, children in the routine group and the continuous group were scored on their quality of life. From multiple perspectives, psychological, physiological and so on, there were 4 points in total. Points 1-4 respectively indicated excellent, good, general and poor. The higher the score, the worse the quality of life.

All patients and their families used self-designed satisfaction scale, including 6 factors, a total of 6 points, 0-2- dissatisfaction, 3- basic satisfaction, 4- satisfaction, satisfaction (%): satisfaction+basic satisfaction/number of patients×100. The complications of the routine group and the continuous group during the nursing period were statistically analysed, including sepsis, pneumothorax and heart failure. SPSS22.0 software was used to analyse the correlation between the routine group and the continuous group. The calculated results

TABLE 1: GENERAL INFORMATION

Group	Sex		Age (y)	Temperature (°)	Course of disease (d)
	Man	Woman			
Routine group	25	20	5.46±1.21	39.5±0.40	2.95±1.40
Continuity group	23	22	5.72±1.15	39.4±0.50	2.90±1.50
X^2/t	0.179		1.045	1.048	0.164
P	0.672		0.299	0.298	0.871

were indicated by $\chi 2$ or t test, $p<0.05$ for the difference. The effective probability of the continuity group is 95.55 %, significantly higher than that of the conventional group (75.55 %). The comparison between the 2 groups is significant ($x^2=4.094$, $p<0.05$), as shown in Table 2.

The duration of hypothermia (1.75±0.65), cough remission (4.24±1.12), rale remission (4.15±0.89) and shortness of breath remission (2.65±0.65) in the continuous group were significantly ($p<0.05$) shorter than those in the routine group's duration of hypothermia (2.85±0.95), cough remission (5.95±1.85), rale remission (5.68±1.25) and shortness of breath remission (3.45±0.75), as shown in Table 3.

Before nursing, the difference of quality of life between the routine group and the continuous group was small ($p>0.05$, Table 4). After nursing, the 2 groups showed significant improvement ($p<0.05$). The improvement of the continuous group was even better than that of the routine group ($p<0.05$). The nursing satisfaction of routine group and continuous group were, 33 (73.33 %) and 41 (91.11 %), respectively. The satisfaction of continuous group was significantly higher than that of routine group as shown in Table 5. The incidence of total complications in the continuous group was 8.89 %, which was significantly ($p<0.05$) lower than that in the routine group (26.67 %) as shown in Table 6.

Pneumonia is a kind of respiratory system disease, which can be divided into mild and severe. When the disease progresses rapidly and is not controlled in time, it will be accompanied with other symptoms, such as heart and respiratory failure. The incidence of pneumonia in children is high, it is seasonal and increases when the weather changes greatly. Some studies have pointed out that when external bacteria invade the body, such as Mycoplasma, they often induce asthma, so timely treatment and care to prevent other complications are of great significance in the treatment of children with pneumonia[9].

This study suggested that the effective rate of nursing in the continuous group is higher than that in the

TABLE 2: CLINICAL EFFICACY [n/(%)]

Group	n	Markedly effective	Effective	Not effective	Effective rate
Routine group	45	24 (53.33)	10 (22.22)	11 (24.44)	34 (75.55)
Continuity group	45	31 (68.69)	12 (26.67)	2 (4.44)	42 (95.55)*
X^2/t		1.934	0.405	10.15	4.094
P		0.164	0.245	0.002	0.043

*Compared with routine group $p<0.05$

TABLE 3: COMPARISON OF SYMPTOM RELIEF TIME BETWEEN THE TWO GROUPS ($\bar{X}$±S)

Group	n	Hypothermia time (d)	Cough relief time (d)	Lung rale remission time (d)	Shortness of breath relief time (d)
Routine group	45	2.85±0.95	5.95±1.85	5.68±1.25	3.45±0.75
Continuity group	45	1.75±0.65*	4.24±1.12*	4.15±0.89*	2.65±0.65*
t		6.410	5.304	6.689	5.407
P		<0.001	<0.001	<0.001	<0.001

*Compared with routine group $p<0.05$

TABLE 4: COMPARISON OF QUALITY OF LIFE BETWEEN TWO GROUPS ($\bar{X}$±S)

Group	n	Before nursing	After nursing	t	p
Routine group	45	116.56±12.04	110.13±10.32#	2.72	0.008
Continuity group	45	117.09±12.11	65.89±6.23*#	25.22	<0.001
t		0.208	24.62		
P		0.835	<0.001		

*Compared with routine group; #Compared with pre nursing $p<0.05$

TABLE 5: COMPARISON OF NURSING SATISFACTION [N/(%)]

Group	n	Satisfaction	Basic satisfaction	Dissatisfaction	Satisfaction degree
Routine group	45	15 (33.33)	18 (40.00)	12 (26.67)	33 (73.33)
Continuity group	45	22 (48.89)	19 (42.22)	4 (8.89)	41 (91.11)*
X^2					3.993
P					0.046

*Compared with routine group $p<0.05$

TABLE 6: COMPARISON OF COMPLICATIONS BETWEEN THE TWO GROUPS [N/(%)]

Group	n	Emphysema	Respiratory failure	Pneumothorax	Heart failure	Hypoxic encephalopathy	Toxic shock	Total incidence rate
Routine group	45	3 (6.67)	3 (6.67)	1 (2.22)	2 (4.00)	2 (4.00)	1 (2.22)	12 (26.67)
Continuity group	45	1 (2.22)	1 (2.22)	0 (0.00)	1 (2.22)	1 (2.22)	0 (0.00)	4 (8.89)*
X^2								8.890
P								0.003

*Compared with routine group p<0.05

routine group, and the improvement time of clinical hypothermia, cough, shortness of breath and rales in the continuous group is lower than that in the routine group. It is suggested that continuous nursing can improve the clinical effect and treatment efficiency of children. It can be concluded that continuous nursing can improve the eating habits, eat less and eat more times, increase the intake of protein, improve the body quality of children, relieve the anxiety and other emotions of children and their families through psychological intervention, guide their families to understand the knowledge and precautions of pneumonia prevention, adopt the correct expectoration method, and speed up the improvement of the condition, which is consistent with the research results of Liang *et al*.[10,11]. Continuous nursing is a new type of nursing method gradually used in recent years. It is not only a nursing method to intervene the life and condition of children in hospital and after discharge, but also to change unreasonable nursing methods and concepts with children as the core, which is suitable for the clinical application under the changing predictive model[12]. He *et al*.[13,14] found that continuous nursing was adopted for 3-5 y old children with pneumonia, the clinical improvement rate of patients increased, the discharge time of patients accelerated, and many kinds of adverse events caused by incomplete treatment were reduced through out of hospital guidance.

This study found that the quality of life, nursing satisfaction and the improvement of complications in the continuity group were better than those in the routine group. This shows that continuous nursing can improve the quality of life of children from multiple perspectives. The quality of life is a recognized health state, and children with pneumonia will increase their psychological pressure due to the restlessness and anxiety caused by pain[15]. Parpa *et al*.[16] found that continuous nursing can reduce children's bad mood, communicate treatment plan with children's families, and increase children's immune function, antibacterial virus infection ability and living condition through diet and proper exercise, which is consistent with those reported by Jamil *et al*.[17,18].

Continuous nursing to meet the needs of patients, improve the overall level of nursing, improve patient satisfaction, promote more effective nursing work, and promote the improvement of doctor-patient relationship. Yang *et al*.[19] found that continuous nursing can improve the nursing satisfaction of children with pneumonia and reduce medical disputes. The continuous nursing process continues outside the hospital, urging the children to adhere to the nursing content and carry out rehabilitation training, which has a good effect on the growth and development of the patients and the improvement of the body immunity, while reducing the occurrence of complications, which is similar to the research of Zheng[20]. To sum up, continuous nursing helps children with pneumonia to improve recovery, reduce pain time, reduce medical disputes, reduce heart, muscle and lung failure and is worthy of application.

Conflict of interest:

No conflict of interest between any of the authors.

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