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Review Article

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Research Progress in Nursing Interventions for Infectious Mononucleosis

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Abstract

This paper provides a systematic review of the research progress in nursing interventions for infectious mononucleosis (IM). Building upon a comprehensive description of the clinical manifestations and complications of IM, it focuses on evaluating the evolutionary pathway and application effectiveness of nursing models transitioning from conventional care to systematic and humanized comprehensive intervention models. This offers theoretical reference and evidence-based support for improving clinical symptoms, reducing complications, enhancing compliance, and improving the quality of life in pediatric IM patients.

Keywords: Infectious Mononucleosis, Systematic Nursing Intervention, Complications.

Introduction

Infectious mononucleosis (IM) is a self-limiting lymphoproliferative disorder mainly caused by Epstein-Barr virus (EBV) infection [1]. EBV is a human herpesvirus that loves lymphocytes, has an envelope and double-stranded DNA, and is mainly transmitted through saliva, blood transfusion and organ transplantation [2]. It triggers subacute or acute proliferative changes in the mononuclear-macrophage system, presenting as a typical triad of irregular fever, cervical lymph node enlargement and pharyngitis, which may be accompanied by eyelid edema, hepatosplenomegaly and discomfort, as well as typical peripheral blood features of increased lymphocytes and allogeneic lymphocytes [3]. Although the incidence of this disease among children is not high, due to the fact that EBV can damage the body's immunity and increase the risk of pathogenic bacterial infection, some children may develop serious complications such as pneumonia and myocarditis, and even fulminative hepatitis and EBV-related phagocytosis, causing varying degrees of physical and mental health impacts [4]. While providing symptomatic treatment, timely and effective comprehensive care can control the condition, reduce the risk of complications, and be conducive to improving the prognosis of patients. Based on this, this study reviews the research progress in the nursing of patients with infectious mononucleosis, with the aim of providing reference for scholars in the same industry.

Clinical Manifestations and Common Complications

Typical Clinical Manifestations of IM include

Fever: Often irregular and prolonged. Pharyngitis/Tonsillitis: Erythema and edema of the pharynx, with whitish exudate on the tonsils in some children.

Lymphadenopathy: Most commonly cervical lymph node enlargement.

Hepatosplenomegaly: Approximately half of the children may present with varying degrees of liver and spleen enlargement.

Eyelid Edema: A characteristic feature.

Common Complications of IM

IM can cause a variety of complications, among which liver injury is one of the most common ones. Li Jincheng et al. conducted a comparative study on 145 children with IM and found that age, duration of fever, duration of fever lasting more than 7 days, hepatosplenomegaly, and abnormal lymphocytes in peripheral blood significantly increased in children with IM accompanied by liver damage. Moreover, early immunomodulatory and liver-protective treatments may alleviate the degree of liver function impairment in children with IM [5]. Hu Yuting et al. also conducted a retrospective analysis of 131 children with IM at the Children's Hospital Affiliated to Zhejiang University School of Medicine and explored the risk factors related to liver injury. Although the clinical characteristics of children with IM are complex and variable, the occurrence of liver injury is related to

increased gender, age and the ratio of atypical lymphocytes [6].

Li Huigai et al. also constructed a risk prediction scoring model for liver damage in children with infectious mononucleosis and used multivariate Logistic regression analysis to explore the risk factors of liver damage in children with IM. It was found that age >6 years old, hepatomegaly, fever duration >7 days, elevated CD8+, and whole blood EBV DNA≥3.38 lg copies/ml were all risk factors for liver damage in children with IM (Pwhile elevated CD4+/CD8+ was a protective factor for liver damage in children with IM (PIn addition, IM can also be complicated by myocardial injury. Liu Jing et al. analyzed 116 children with IM at the Children's Hospital of Baoji Maternal and Child Health Hospital and found that an elevated EBV DNA load is a risk factor for myocardial injury in children with IM. Monitoring and early intervention for this high-risk group should be strengthened [8]. Other complications include pneumonia and even those related to the occurrence of malignant tumors, which highlight the importance of effective nursing intervention.

IM Nursing Intervention Models and Application Effectiveness

Conventional Nursing Interventions

Respiratory tract care intervention

Respiratory tract or droplets are the main modes of transmission of IM. Strict disinfection, isolation and hand hygiene systems must be implemented. The child patient should be admitted to a single room or a ward with the same disease type. The number of visitors should be restricted to reduce personnel movement. Nursing staff should keep the air in the ward circulating, open Windows for ventilation at regular intervals, and disinfect with ultraviolet light every day. The floor, tables and chairs should be wiped and disinfected twice a day with 500mg/L Jianzhisu solution. Respiratory secretions of IM children should be treated as infectious waste. During the acute stage of IM, there are more airway secretions in children, so it is necessary to keep the airway unobstructed. Humidify the ward environment to maintain the indoor humidity at 50% to 60%, preventing the respiratory secretions of the children from becoming thick. Assist the child in a semi-reclining position with the head turned to one side, encourage coughing and expectoration, and if necessary, provide nebulization and oxygen inhalation to relieve the child's ventilation and gas exchange disorders [9].

Fever Management Interventions

The axillary method was used for temperature measurement in both groups: The child's clothing was loosened, and the axilla was dried with a towel. The bulb of the thermometer was placed deep in the axilla, ensuring it did not extend outside and that no clothing separated it from the skin. The arm was then held snugly against the body. The thermometer was read after 5 minutes. Measurements were taken at least 20 minutes after bathing or vigorous activity to avoid inaccurate readings [10].

Medication Administration Nursing Interventions

Clinically, there is no specific treatment for patients with infectious mononucleosis, and symptomatic treatment is mainly adopted. Antibacterial drugs are ineffective for this disease and should only be used when secondary bacterial infections occur. Antiviral treatment can use drugs such as acyclovir, ganciclovir and valacyclovir, but their efficacy remains controversial. Intravenous injection of gamma globulin can improve clinical symptoms and shorten the course of the disease. Early administration has a better effect. Larger blood vessels should be selected for infusion, and the infusion time should be more than 1 hour to avoid drug seepage and splashing. If seepage or splashing occurs, it should be thoroughly rinsed with clean water immediately. If necessary, infrared radiation should be used to irradiate the swollen area caused by drug splashing. Alpha-interferon also has a certain therapeutic effect. Short-term application of adrenal cortical hormones in severe patients can significantly alleviate symptoms.

Nursing Care for Lymphadenopathy and Hepatosplenomegaly
Rest and activity: During the acute stage, bed rest is essential, especially for children with hepatosplenomegaly, to reduce the body's oxygen consumption and alleviate the burden on organs. Absolutely avoid strenuous exercise and abdominal collisions. Because the spleen is fragile, it is very likely to rupture due to external force when it swells, which is a serious and life-threatening complication. This restriction should continue until the liver and spleen shrink back to their normal size (usually taking one month or longer). During the recovery period, one can engage in light activities such as walking, but still needs to avoid confrontational sports. Observation and Reporting: Closely monitor the child for any sudden severe pain in the upper left abdomen, abdominal distension, pale complexion, accelerated heart rate, dizziness or other signs of spleen rupture. Report to the doctor immediately if any of these symptoms occur [11].

Dietary Nursing Interventions

Adequate nutritional support is fundamental for recovery. Follow the "three highs and one easy" principle: Provide a diet high in calories, protein, and vitamins, and easy to digest. Ensure adequate fluid intake: Encourage frequent oral fluids. For children reluctant to drink due to sore throat, offer small, frequent amounts of juice, broth, or oral rehydration solutions to prevent dehydration. Avoid hepatotoxic substances: Given the frequent association with liver injury, avoid greasy, fried foods, and strictly prohibit alcohol.

Additionally, contact isolation should be implemented: IM is primarily spread via saliva ("kissing disease"). Isolate the child in a single room or cohort. Limit visitors. Strict hand hygiene must be enforced: Healthcare workers and family must perform hand hygiene before and after contact. The child's oral/nasal secretions and sputum should be disposed of in covered containers. Their utensils and towels should be for personal use only and regularly disinfected.

Specialized IM Nursing Intervention Models and Application Effectiveness

Systematic Nursing Intervention

Although traditional routine care is basic, it often lacks systematicness and initiative. In recent years, a variety of structured and systematic nursing intervention models have shown better results. Systematic nursing intervention is a comprehensive, planned and organized nursing model that provides all-round intervention for children's thoughts, emotions, diet and rest.

Yang Xiaoxia et al. randomly selected 68 children and divided them into the intervention group and the control group. They

compared the disappearance time of clinical symptoms and the occurrence of complications after nursing in the two groups. Results: The disappearance time of lymph node enlargement, splenomegaly and hepatomegaly, rash, pharyngitis and fever in the study group after nursing was shorter than that in the control group, and the incidence of respiratory failure, arrhythmia, pneumonia and emphysema was lower than that in the control group. This indicates that systematic nursing intervention should be implemented for children with IM. It not only has a very significant effect on improving the treatment outcome and rehabilitation quality of the children's patients, but also can effectively alleviate various clinical symptoms of the children's patients and relieve their suffering. It is worthy of promotion and application [12].

Zhou Yongqin et al. also implemented systematic intervention on 68 children with IM in the Pediatrics Department of the Second People's Hospital of Taizhou City, Jiangsu Province. The results showed that the parents' satisfaction score of the children who received systematic intervention was higher than that of the control group, and the hospital stay was shorter than that of the control group. This also confirmed that the nursing effect of systematic nursing intervention for children with IM was significant and could be promoted and applied [13]. In addition, Jiang Li et al. grouped 60 children with IM using a random number table. Then, they implemented a systematic pain assessment and management model for 30 children with IM in the observation group on the basis of conventional care, and used the FLACC scale to evaluate the pain degree of the children. The results showed that the pain degree of each group decreased significantly after care, and the pain degree of the observation group was milder than that of the control group. Moreover, the quality-of-life scores of both groups improved compared with those before the care of this group, and the improvement effect of the observation group was better than that of the control group. This once again proved that the systematic pain assessment and management model in the care of preschool children with IM can reduce the degree of pain, improve the quality of life, and improve the nurse-patient relationship, which is worthy of promotion and application [14].

In conclusion, this model can significantly accelerate the regression of clinical symptoms in children, reduce the incidence of complications, shorten the length of hospital stay, and fundamentally enhance the care ability and satisfaction of family members. It not only focuses on the immediate physical rehabilitation of the children's patients, but also pays attention to their psychological and emotional needs as well as their long-term health. It reflects the humanistic care and professional value of modern nursing and has become a key strategy and future development direction for improving the nursing quality and prognosis of children with IM.

Emotional/Psychological Nursing Intervention

Emotional care can influence children and their guardians through the expressions, postures, words and behaviors of caregivers, alleviating the concerns and troubles of children [15]. Liu Linghong et al. randomly assigned 68 children with IM admitted to the Children's Hospital of Nanjing Medical University using the Double Color Ball method. They provided emotional care intervention to the children in the intervention group on the basis of routine care. They compared and analyzed the clinical indicators, quality of life, satisfaction of guardians and incidence of complications of the two groups of children. It was found that emotional care could significantly optimize the recovery time of body temperature, hospital stay and hospitalization cost of children with IM, improve the quality of life of children, increase the satisfaction of guardians of children, and reduce the occurrence of complications [16]. In 2021, Zhang Weideng once again explored the application effect of emotional care in children with IM. He also conducted an interventionist study, comparing the changes in various clinical indicators, quality of life [using the Infantile-Junior High School Student Social Life Ability Scale (S-M)], family cooperation, and the occurrence of adverse reactions between the two groups. Results: The S-M score of the observation group was higher than that of the control group (Pand the recovery time of body temperature, the length of hospital stay, and the hospitalization cost were better than those of the control group. This once again proved that providing emotional care to children with IM can improve the quality of life of children, enhance the cooperation of family members, the prognosis of children, and reduce the occurrence of complications [17].

Application Progress of Other Nursing Intervention Models in IM Children

Although IM is self-limiting and most cases have a good prognosis, due to the persistent high fever, swollen cervical lymph nodes, and even the occurrence of malignant tumors, it seriously affects the physical health of the children and also increases the anxiety of the parents. Therefore, more and more scholars are now beginning to pay attention to the psychological conditions of the parents of children with IM. Zhang Longbao et al. applied mind mapping to the health education of parents of children with IM. Because it can convert a large amount of information into graphics of various colors, it is convenient for understanding and memory, and leaves a deep impression [18]. Therefore, when it is applied to the parents of children with IM, it can enhance their mastery of health education and satisfaction with nursing, and at the same time improve the children's medication compliance. It is worthy of promotion and reference [19].

In addition, the clinical practice has also explored the application of various nursing models in IM, all of which have achieved relatively satisfactory results. Family-like care requires medical staff to treat patients as family members and provide them with high-quality care in various aspects. It is also a holistic care model, which can effectively reduce the psychological burden of children patients and improve their compliance with medical treatment [20]. Zhou Fan et al. explored the application of the family-like nursing model in children with IM. After intervention, they found that the family-like nursing model helps improve the nursing effect, relieve the negative emotions of the children, enhance their compliance with medical treatment and nursing, further reduce the occurrence of complications, and alleviate the children's suffering. It is worthy of clinical promotion and application [21]. Li Jing et al. explored the application effect of multi-sensory interactive education in parents of children with IM [22].

In recent years, with the National Health Commission's emphasis on medical humanities, narrative nursing has gradually become a research hotspot. Narrative nursing can effectively guide patients to release their emotions and feel the warmth of care,

which is beneficial for improving patients' anxiety. Improving the anxiety level and maintaining a stable nurse-patient relationship are highly beneficial [23]. Yang Yuanyuan et al. explored the impact of narrative nursing on the anxiety levels of parents of children with IM [24], indicating that narrative nursing helps reduce the anxiety levels of parents of children with IM and enhance their satisfaction with nursing care.

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