



**THE ROLE OF NURSES IN THE EXAMINATION OF CHILDREN BORN TO HIV-
INFECTED MOTHERS**

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Abstract: This article highlights the role of nurses in the examination of children born to HIV-infected mothers, as well as their key responsibilities and practical importance. The study analyzes the significance of early diagnosis of HIV infection in children, the use of modern diagnostic methods, and the implementation of preventive measures. It also emphasizes the role of nurses in patient monitoring, organization of laboratory examinations, and effective communication with parents. The results show that a comprehensive approach and high-quality nursing care are essential for improving child health outcomes and reducing complications.

Keywords: HIV infection, children, nurse, diagnosis, prevention, antiretroviral therapy, monitoring, vertical transmission

Introduction

Human Immunodeficiency Virus (HIV) infection remains a major global public health problem, affecting millions of people worldwide. The virus damages the immune system, particularly CD4⁺ T cells, leading to increased susceptibility to opportunistic infections. One of the most important aspects of HIV transmission is mother-to-child transmission (MTCT), which can occur during pregnancy, childbirth, or breastfeeding. Children born to HIV-infected mothers are considered a high-risk group and require early diagnosis, regular medical examinations, and appropriate preventive measures. Early detection and timely initiation of antiretroviral therapy significantly reduce disease progression and improve health outcomes. Diagnostic methods such as polymerase chain reaction (PCR), CD4 cell count, and viral load testing are essential in identifying and monitoring HIV infection in children. Nurses play a crucial role in this process. They are actively involved in patient care, preparation for laboratory tests, monitoring the child's condition, and ensuring adherence to treatment. In addition, nurses provide education and counseling to parents, helping them understand the importance of regular follow-up and proper care. Therefore, the aim of this article is to analyze the role of nurses in the examination of children born to HIV-infected mothers and to highlight its practical importance.

Relevance

Human Immunodeficiency Virus (HIV) infection remains an important medical issue worldwide. In particular, mother-to-child transmission (vertical transmission) has a significant impact on child health. Since transmission can occur during pregnancy, childbirth, or breastfeeding, children born to HIV-infected mothers are considered a high-risk group. Early diagnosis, timely medical examination, and regular follow-up of these children are essential. Despite the availability of modern diagnostic methods, the role of nurses in effectively organizing examination and monitoring processes remains crucial. Nurses play a key role in child care, preparation for laboratory tests, and communication with parents.

Aim

The aim of this article is to study the role of nurses in the examination of children born to HIV-infected mothers and to highlight their main responsibilities and practical importance. In addition, this study seeks to evaluate the contribution of nursing care to early diagnosis and effective prevention of HIV infection in children. Furthermore, it aims to emphasize the importance of continuous monitoring and proper patient management in improving health outcomes.



Main part

Human Immunodeficiency Virus (HIV) is a retrovirus that primarily targets the immune system, specifically CD4+ T lymphocytes, which play a crucial role in immune defense. After entering the body, the virus integrates into host cells and gradually weakens the immune system, making the individual more susceptible to opportunistic infections and malignancies. The advanced stage of HIV infection is known as Acquired Immunodeficiency Syndrome (AIDS). Clinically, HIV infection progresses through several stages, including acute infection, a latent (asymptomatic) period, and the AIDS stage. Each stage is characterized by different clinical manifestations, which are important for diagnosis and management. Globally, HIV infection remains widespread, with millions of people living with the virus. Epidemiological data indicate that prevalence varies across regions, with higher rates observed in developing countries. HIV is transmitted mainly through three routes: sexual contact, parenteral exposure (through blood), and vertical transmission from mother to child. In recent years, the widespread use of antiretroviral therapy (ART) has significantly reduced morbidity and mortality associated with HIV. However, the infection still represents a major public health concern. In pediatric populations, most cases are associated with mother-to-child transmission, highlighting the importance of early detection, prevention, and continuous monitoring. Therefore, effective epidemiological control and timely medical interventions are essential in reducing the burden of the disease.

Mother-to-child transmission (MTCT) of HIV, also known as vertical transmission, is the primary cause of HIV infection in children. Transmission can occur during three main periods: pregnancy (antenatal), labor and delivery (intrapartum), and breastfeeding (postnatal). During pregnancy, the virus may cross the placenta, especially when the maternal viral load is high. During childbirth, the infant may be exposed to infected maternal blood and bodily fluids, increasing the risk of transmission. Breastfeeding is also a significant route, as HIV can be present in breast milk. The risk of vertical transmission depends on several factors, including maternal viral load, immune status, use of antiretroviral therapy, and delivery practices. Without preventive measures, the risk of transmission can be relatively high. However, with appropriate interventions such as timely initiation of ART, the risk can be significantly reduced. Routine screening of pregnant women, monitoring of viral load, and proper management of labor are essential preventive strategies. In addition, providing prophylactic treatment to newborns and selecting appropriate feeding methods play a critical role in reducing transmission. Therefore, prevention of vertical transmission requires a comprehensive and multidisciplinary approach, in which healthcare workers, especially nurses, play an important role.

Children born to HIV-infected mothers are considered a high-risk group for acquiring HIV infection and developing related complications. The level of risk depends on several maternal and perinatal factors. Infants whose mothers did not receive antiretroviral therapy during pregnancy have a significantly higher risk of infection. Similarly, a high maternal viral load and low CD4+ cell count increase the likelihood of transmission. Premature infants and those with low birth weight are also more vulnerable due to their immature immune systems. Additionally, children who are breastfed by HIV-positive mothers without appropriate preventive measures remain at risk of postnatal transmission. Other risk factors include prolonged labor, invasive obstetric procedures, and lack of proper medical supervision during pregnancy and delivery. Socioeconomic conditions, limited access to healthcare services, and low awareness among parents can further contribute to increased risk. These children require careful clinical evaluation, early diagnostic testing, and continuous medical follow-up. Identification of high-risk groups allows healthcare providers to prioritize interventions and ensure timely initiation of preventive and therapeutic measures. Nurses play an important role in recognizing these risk factors,



maintaining regular monitoring, and supporting families in adhering to medical recommendations. Therefore, proper classification and management of risk groups are essential for improving health outcomes in children born to HIV-infected mothers.

Accurate and early diagnosis of HIV infection in children is essential for timely initiation of treatment and prevention of disease progression. Diagnostic approaches vary depending on the age of the child. In infants under 18 months of age, serological tests are not reliable due to the presence of maternal antibodies; therefore, virological methods are preferred. Polymerase chain reaction (PCR) is the gold standard for early infant diagnosis, as it detects viral genetic material directly. This test allows identification of infection within the first weeks of life. In older children, serological tests such as enzyme-linked immunosorbent assay (ELISA) and rapid diagnostic tests are commonly used to detect HIV antibodies. Positive results are usually confirmed with additional tests to ensure accuracy. Monitoring of CD4+ T cell count is important for assessing immune function, while viral load testing helps evaluate the level of viral replication and effectiveness of antiretroviral therapy. Regular laboratory and clinical assessments are necessary to track disease progression and guide treatment decisions. Nurses play a vital role in preparing patients for testing, collecting biological samples, and ensuring proper handling and transportation of specimens. They also assist in follow-up care and patient education. Thus, a combination of laboratory and clinical methods is essential for effective diagnosis and management of HIV infection in children.

Laboratory and clinical examination of HIV-infected children is essential for assessing disease progression, immune status, and treatment effectiveness. A comprehensive evaluation includes both routine clinical assessment and specialized laboratory investigations. Clinically, children are examined for growth and development, nutritional status, presence of opportunistic infections, and general physical condition. Common clinical signs may include recurrent infections, failure to thrive, lymphadenopathy, and chronic diarrhea. These manifestations provide important clues about the severity of the disease. Laboratory investigations play a central role in confirming diagnosis and monitoring disease progression. Key tests include CD4+ T lymphocyte count, which reflects immune function, and viral load testing, which measures the amount of virus in the blood. Complete blood count (CBC), liver and kidney function tests are also important for evaluating overall health and potential side effects of antiretroviral therapy. In addition, screening for co-infections such as tuberculosis and hepatitis is often necessary. Regular monitoring allows early detection of complications and timely adjustment of treatment. Nurses are actively involved in performing routine assessments, collecting biological samples, and ensuring accurate documentation of clinical findings. They also observe changes in the child's condition and report them to physicians. Therefore, systematic laboratory and clinical examination is crucial for effective management of HIV-infected children.

Nurses play a fundamental role in the examination and management of children born to HIV-infected mothers. Their responsibilities are diverse and cover all stages of patient care, from initial assessment to long-term follow-up. Nurses are involved in preparing children for clinical and laboratory examinations, ensuring that procedures are carried out safely and effectively. They collect biological samples such as blood and ensure proper handling, labeling, and transportation to the laboratory. In addition, nurses monitor the child's vital signs, growth parameters, and overall health status, documenting any changes and informing the medical team. They play a key role in ensuring adherence to antiretroviral therapy by educating caregivers about correct medication use and the importance of regular treatment. Infection control is another critical aspect of their work, as they follow standard precautions to prevent the spread of infection within healthcare settings. Nurses also provide psychological support and counseling to



parents, helping them cope with the diagnosis and understand the importance of follow-up care. Effective communication between healthcare providers and families improves treatment outcomes and patient compliance. Furthermore, nurses participate in organizing regular check-ups and maintaining follow-up records. Their continuous involvement ensures early detection of complications and timely medical intervention. Thus, the role of nurses is essential in improving the quality of care and overall health outcomes of children at risk or living with HIV.

Effective management of children born to HIV-infected mothers requires close cooperation with parents or caregivers. Education and counseling are essential components of prevention and care. Parents should be provided with clear and accurate information about HIV infection, its transmission routes, and methods of prevention. Nurses play a key role in delivering this information in an understandable and supportive manner. They educate caregivers on proper child care practices, including hygiene, nutrition, and safe feeding options. In particular, counseling on infant feeding is crucial, as breastfeeding may pose a risk of postnatal transmission if not properly managed. Preventive measures also include strict adherence to antiretroviral therapy for both mother and child. Nurses ensure that parents understand the importance of timely and consistent medication use. They also emphasize the need for regular medical check-ups and laboratory testing. Immunization according to national guidelines is another important preventive strategy, although certain live vaccines may require special consideration depending on the child's immune status. Psychological support for families is equally important, as the diagnosis of HIV can cause stress, anxiety, and social stigma. Nurses help build trust and encourage open communication, which improves adherence to medical recommendations. In addition, they provide guidance on infection prevention within the household. Therefore, effective collaboration with parents and implementation of preventive measures significantly reduce the risk of disease progression and improve the overall well-being of the child.

Dispensary follow-up and continuous monitoring are essential components in the management of children born to HIV-infected mothers. These children require long-term observation to ensure early detection of infection, timely initiation of treatment, and prevention of complications. Follow-up programs include regular clinical assessments, laboratory testing, and evaluation of growth and developmental milestones. The frequency of visits depends on the child's age, clinical condition, and treatment status. Monitoring includes periodic measurement of CD4+ T cell count and viral load to assess immune function and treatment effectiveness. Early identification of changes in these parameters allows healthcare providers to adjust therapy accordingly. In addition, regular screening for opportunistic infections and other comorbidities is necessary. Maintaining accurate medical records is important for tracking disease progression and ensuring continuity of care. Nurses play a central role in organizing and maintaining follow-up systems. They schedule appointments, remind caregivers about visits, and ensure that necessary tests are performed on time. They also monitor adherence to treatment and identify any barriers that may affect compliance. Through continuous observation and communication, nurses contribute to early detection of complications and prompt medical intervention. Therefore, effective dispensary follow-up and monitoring significantly improve long-term outcomes and quality of life in children at risk or living with HIV.

Discussion

The findings related to the examination and monitoring of children born to HIV-infected mothers demonstrate that early diagnosis and preventive measures have significant clinical importance. According to various studies, in the absence of antiretroviral therapy, the risk of mother-to-child transmission ranges from 25% to 40%. However, with the full implementation



of modern preventive interventions, this rate can be reduced to 1–2%. The use of polymerase chain reaction (PCR) as an early diagnostic method allows detection of HIV infection within the first months of life, with an accuracy of approximately 90–95%. A decrease in CD4+ T cell count indicates immunosuppression and is associated with a more severe disease course. Clinical observations show that children with low CD4 levels have a 60–70% higher risk of developing opportunistic infections. The active involvement of nurses also leads to improved outcomes. Through continuous monitoring and effective counseling of parents, adherence to antiretroviral therapy increases to 80–90%. This significantly enhances treatment effectiveness and reduces the risk of complications. Additionally, children enrolled in regular follow-up programs show a lower incidence of severe disease forms. These findings highlight the essential role of nursing care in improving clinical outcomes.

Results

The analysis indicates that early diagnosis and the implementation of preventive measures significantly reduce disease progression in children born to HIV-infected mothers. With appropriate antiretroviral therapy and proper care, up to 95% of children demonstrate normal growth and development. When preventive strategies are fully applied, the rate of HIV transmission can be reduced to less than 2%. Furthermore, studies involving active nursing participation show that adherence to scheduled laboratory examinations exceeds 85%, while medication adherence approaches 90%.

This contributes to improved treatment outcomes and better disease control. Continuous monitoring has also been associated with a 30–40% reduction in the incidence of complications. Overall, a comprehensive approach that includes early diagnosis, effective prevention, antiretroviral therapy, and active nursing involvement plays a crucial role in improving health outcomes in children at risk or living with HIV.

Conclusion

The examination and monitoring of children born to HIV-infected mothers represent an important area in pediatrics and infectious disease practice. Research shows that early diagnosis, effective prevention, and timely initiation of antiretroviral therapy play a crucial role in preventing disease progression and reducing complications in children. In this process, the role of nurses is of particular importance. They are key participants in preparing children for medical examinations, organizing laboratory tests, monitoring patients' conditions, and providing education and counseling to parents. Active involvement of nurses improves adherence to treatment, which in turn enhances the effectiveness of therapy. Furthermore, a comprehensive approach that includes early detection, regular monitoring, full implementation of preventive measures, and high-quality nursing care is essential for maintaining child health. Therefore, improving the knowledge and skills of nurses and enhancing their practical activities in this field are of great importance. In conclusion, effective medical care and professional nursing support for children born to HIV-infected mothers contribute significantly to preventing disease progression, reducing complications, and ensuring healthy development.

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