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Case Report

Nutrition and Growth in Children: A Nursing Perspective – A Case Report

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Abstract

Background: Nutrition is foundational to a child's growth and development, particularly during infancy when the demand for energy and nutrients is highest. This case report highlights the critical role of nursing intervention in managing growth faltering in a 2-month-old infant with congenital heart disease.

Case Presentation: The infant, born at term and initially breastfed, presented with poor weight gain, fatigue during feeding, and developmental concerns. Physical examination and growth chart analysis confirmed underweight and stunting. A comprehensive nursing assessment identified inadequate nutritional intake, increased metabolic demands, and parental knowledge gaps as key contributing factors.

Nursing Interventions: Individualized care included the initiation of a high-calorie feeding regimen, structured health education for caregivers, frequent anthropometric monitoring, and collaboration with pediatric and dietary teams.

Outcome: Over time, the infant showed improved weight gain, enhanced feeding tolerance, and developmental progress. The parents reported increased confidence and adherence to the nutritional plan.

Conclusion: This case emphasizes the importance of early nursing assessment and targeted interventions in addressing pediatric malnutrition. Nurse-led strategies, including growth monitoring, education, and collaborative care, are vital for improving health outcomes in nutritionally at-risk children.

Keywords: Congenital heart disease, growth faltering, infant development, nursing intervention, pediatric nutrition

Introduction

Nutrition is a cornerstone of healthy child development, profoundly influencing physical growth, brain maturation, and the acquisition of cognitive, social, and emotional skills. Adequate nutrition during early childhood is essential for optimal brain development, immune function, and the attainment of developmental milestones. Nutrients such as proteins, vitamins, minerals, and essential fatty acids support organ development, bone health, and neural connectivity, laying the foundation for lifelong health and learning capacity.[1] Children who receive proper nutrition are more likely to perform better academically, develop stronger social skills, and maintain a healthy weight, whereas poor nutrition increases the risk of developmental delays, learning difficulties, and chronic diseases in later life.[2]

Nurses play a pivotal role in monitoring and promoting child growth by conducting regular developmental assessments, identifying nutritional challenges, and providing evidence-based guidance to families. Their responsibilities encompass supporting breastfeeding, guiding the introduction of

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complementary foods, and addressing specific nutritional issues such as failure to thrive or special dietary needs. Nurses serve as advocates, educators, and frontline caregivers, collaborating with multidisciplinary teams to ensure early identification and timely intervention for growth or nutritional concerns.[3] Through comprehensive assessment tools and health education, nurses empower parents to make informed decisions that foster optimal growth and development in their children.[4]

This case highlights the critical role of nursing assessment and intervention in addressing complex nutritional challenges in pediatric patients. By sharing practical insights and outcomes, this report aims to emphasize the value of nurse-led, individualized care in supporting healthy growth trajectories and improving long-term health outcomes for children at risk.[5]

Case Presentation

Patient details

- Age: 2 months
- Gender: Male
- Socioeconomic background: The patient belongs to a lower-middle-income family residing in an urban area. The family reports limited access to specialized healthcare and relies primarily on public health services for medical needs.[6]

Chief complaints

- Poor weight gain since birth
- Fatigue during feeding
- Occasional irritability and prolonged feeding time.

History

- Medical history: The infant was born at term through normal vaginal delivery with a birth weight of 2.8 kg. He was diagnosed with congenital heart disease (CHD) during the neonatal period and has had two episodes of lower respiratory tract infections requiring outpatient management.
- Dietary history: The infant was initially exclusively breastfed. Due to poor weight gain, formula feeds and medium-chain triglyceride oil were introduced at 1 month of age. Feeding is characterized by frequent pauses and early satiety.
- Family history: No history of genetic disorders or metabolic diseases. Both parents are healthy, and there is no consanguinity.
- Growth history: The child's weight has consistently tracked below the 3rd percentile since birth, with minimal weight gain over the past month. Length and head circumference have also shown suboptimal progression compared to age norms.[7]

Physical examination

- Anthropometric measurements
  - Weight: 3.2 kg (below 3rd percentile for age)
  - Length: 52 cm (below 3rd percentile)
  - Head circumference: 36 cm (at 3rd percentile)
  - Body mass index (BMI): Not typically calculated for infants, but weight-for-length is markedly low
- General appearance: The infant was alert, but fatigued easily during examination. Mild pallor was noted.
- Developmental milestones: A social smile was present. The infant was able to fix and follow objects with their eyes. A mild delay in head control was noted and was attributed to overall poor energy and growth status.[8]

Investigations

- Laboratory tests: Hemoglobin 10.2 g/dL (mild anemia), normal electrolytes, and liver function tests.
- Growth chart analysis: Serial plotting confirms that weight and length are below the 3rd percentile, with a flat growth trajectory since the 1st month of life.
- Other relevant tests: An echocardiogram confirmed CHD; there was no evidence of additional congenital anomalies.[9]

Nursing assessment

Nutritional assessment tools used

- 24-h recall and food frequency: A detailed 24-h dietary recall and food frequency questionnaire were conducted with the caregiver to assess the infant's intake of breast milk, formula, and supplements.
- Growth chart analysis: The child's weight, length, and head circumference were plotted on World Health Organization (WHO) growth charts, revealing persistent tracking below the 3rd percentile for weight-for-age and length-for-age, indicating both underweight and stunting.[10]
- BMI percentile: Although BMI is not typically used for infants under 2 years, weight-for-length percentiles were assessed according to WHO standards, confirming acute malnutrition (wasting).
- Other tools: Mid-upper arm circumference was considered, but it was not routinely used in infants under 6 months.[11]

Psychosocial assessment

- Parental knowledge: The assessment revealed limited parental understanding of age-appropriate feeding practices and the nutritional needs of infants with chronic illness.
- Feeding practices: Feeding was inconsistent, with frequent interruptions and early satiety. The family expressed anxiety about the child's poor growth and feeding difficulties, highlighting the need for education and support.

Identification of nursing diagnoses

- Imbalanced nutrition: Less than body's requirements related to increased metabolic demand and inadequate intake.
- Risk for delayed growth and development related to chronic illness and nutritional deficits.
- Ineffective family coping related to anxiety about the child's health and feeding challenges.

Nursing interventions

- Dietary recommendations and modifications: The team initiated a high-calorie, nutrient-dense formula in addition to expressed breast milk, and increased feeding frequency to every 2 h with gradual escalation of caloric intake.[12]
- Health Education to Family: Caregivers were provided counseling on the importance of regular feeding, recognizing hunger cues, and techniques to maximize nutritional intake during each feeding session. Education was also given on age-appropriate feeding practices, maintaining proper hygiene during food preparation and feeding, and monitoring the child's growth and developmental milestones. Additionally, myths and misconceptions related to infant nutrition and growth were addressed to promote informed caregiving and ensure optimal nutritional outcomes for the child.
- Monitoring and follow-up plan: Scheduled weekly weight checks, monthly length and head circumference measurements, and regular review of feeding diaries. Growth was tracked using WHO growth charts and digital tools for accuracy.[13]
- Collaboration: Maintained close communication with the pediatrician and consulted a dietitian to tailor the nutrition plan, monitor the child's nutritional status, and address any emerging dietary or health-related issues throughout the course of care.[7]

Outcome and follow-up

- Changes in anthropometric measures: The child demonstrated steady weight gain, improved length, and maintained head circumference at the 3rd percentile. Energy levels and feeding tolerance improved noticeably.
- Adherence: The family adhered to the recommended nutritional plan, reporting increased confidence in managing feeds.
- Long-term plans/preventive care: Continued growth monitoring, routine immunizations, and anticipatory guidance on complementary feeding were advised to sustain progress and prevent relapse.

Discussion

Early identification and intervention for growth faltering are critical, as the 1st year of life is particularly vulnerable to sharp declines in growth if nutritional issues are not addressed promptly.[4] Growth monitoring and promotion programs, as recommended by WHO and UNICEF, emphasize regular anthropometric assessment, individualized counseling, and timely follow-up to link detection with effective action.[14] Nurses are central to this process, serving as both frontline assessors and educators, and their engagement with families is key to improving child health outcomes.

Community and school health nurses further extend the reach of growth monitoring, especially in resource-limited settings, by ensuring regular assessment and health education at the population level.[10] Challenges in this case included limited parental knowledge, feeding difficulties due to illness, and resource constraints. These were addressed through targeted education, frequent follow-ups, and multidisciplinary collaboration.

Conclusion

This case underscores the vital role of comprehensive nursing assessment and individualized interventions in managing pediatric growth faltering. Regular growth monitoring, parental education, and close collaboration with other health professionals are essential for early detection and effective management. For similar cases, it is recommended that nurses employ standardized growth charts, provide tailored nutritional counseling, and ensure consistent follow-up to optimize child growth and development.[15]

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