IMPACT OF PEDIATRIC MALNUTRITION ON THE SEVERITY AND RECOVERY OF INFECTIOUS DISEASES

Maner S.S.

Supervisor: A.B. Aziza, PhD

Tashkent Medical Academy, Tashkent, Uzbekistan

Keywords: *pediatric malnutrition; infectious diseases; immune response; sepsis; hospital stay; mortality; nutritional interventions*

Relevance. Malnutrition remains a major public health issue affecting paediatric populations, particularly in low- and middle-income countries. It weakens the immune system, making children more susceptible to severe infections and prolonging recovery. Understanding the correlation between malnutrition and infectious disease severity is crucial for developing early screening strategies, improving the therapy interventions and reducing childhood mortality. This study provides evidence to support the integration of nutritional rehabilitation programs into infectious disease management in paediatric care settings. **Purpose:** this study aims to assess impact of malnutrition or infection severity, the duration of hospital stays, and the rate of complications among paediatric patients. It will compare mortality rates between malnourished and well-nourished children to delineate critical differences in clinical outcomes. By analyzing patient data, the studies seeks to identify specific nutritional deficiencies, such as protein, energy, malnutrition, and various micro nutrient deficits that exacerbate the course of infectious diseases. Ultimately, the findings will be used to provide evidence based recommendations for early nutritional interventions, thereby improving the management and prognosis of paediatric infectious diseases in this vulnerable population.

Materials and methods. A retrospective cohort study was conducted at a tertiary pediatric hospital over a three-year period (2022–2024), analyzing medical records of 6 months to 10 years children diagnosed with infectious diseases such as pneumonia, diarrhoea, sepsis, and tuberculosis, with documented nutritional status (assessed via weight-for-height, BMI, and MUAC). Patients with congenital immunodeficiencies, those receiving immunosuppressive therapy, or with incomplete records were excluded. Data collection encompassed anthropometric measurements, infection severity indicators (ICU admission, need for mechanical ventilation, and presence of sepsis), hospital stay duration, complications including secondary infections and multi-organ dysfunction syndrome, as well as mortality rates attributed to infectious disease complications. Statistical analyses were performed using chi-square tests for categorical variables, independent *t*-tests for continuous variables, and logistic regression to evaluate the impact of malnutrition on mortality risk, with significance level at $p < 0.05$.

Results. In a retrospective analysis of five hundred pediatric patients (250 malnourished and 250 well-nourished) with a mean age of 3.2 years, common infectious diseases included pneumonia (38%), diarrhea (25%), sepsis (20%), tuberculosis (10%), and other infections (7%). Notably, malnourished children exhibited significantly higher rates of complications compared to their well-nourished counterparts, with sepsis progression observed in 42% versus 18% ($p < 0.01$), acute kidney injury in 18% versus 6% ($p < 0.01$), persistent diarrhea lasting more than 7 days in 25% versus 10% ($p < 0.01$), and severe pneumonia with respiratory failure in 30% versus 12% ($p < 0.01$). Furthermore, the overall mortality risk in the malnourished group was 4.2 times higher than in well-nourished patients, with the highest mortality rate (15%) occurring among children diagnosed with severe acute malnutrition (SAM) complicated by sepsis.

Conclusion. This study demonstrates a strong association between pediatric malnutrition and the severity, duration, and recovery of infectious diseases. Malnourished children had longer hospital stays, higher rates of complications, increased ICU admissions, and greater mortality risk compared to well-nourished peers.

* * *