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Oral Antibiotics and Early Discharge for Febrile Neutropenia in Pediatric Oncology

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Background

Febrile neutropenia is defined as a temperature of ≥38.0°C with an absolute neutrophil count (ANC) <1500. This is a common reason for hospital admission in pediatric cancer patients given the myelosuppressive effects of many chemotherapeutic agents. In one study, nearly 20% of emergency department visits in pediatric cancer patients were due to fever, and periods of severe neutropenia (ANC < 500) present the highest risk of morbidity and mortality due to infection. For this reason, pediatric oncology patients with fever and severe neutropenia are admitted to the hospital for management. These hospital stays lead to risks of nosocomial infection, mounting healthcare costs, and lessened quality of life. We aim to observe the safety and impact on length of stay for early discharge (prior to count recovery) on oral antibiotics in the treatment of febrile neutropenia in pediatric oncology patients.

Methods

This retrospective case-control study compares 1) unplanned readmission rates within 96 hours and 2) length of stay in pediatric oncology patients with febrile neutropenia who were discharged home on oral levofloxacin before count recovery (cases) or stayed until evidence of count recovery (controls). Study patients had an oncologic diagnosis admitted with or developed febrile neutropenia at Children's Hospital Omaha, without history of Trisomy 21, acute myeloid leukemia, bone marrow transplant, and without discharge home on IV antibiotics.

Results

Cases (n=32) were an average of 8.7 years of age (1.2-19.3) at hospital admission and controls (n=64) were 7.4 years of age (0.9-17.9). Oncologic diagnoses for each group included: leukemia (66% cases and 64% controls), solid tumor (22% cases and 28% controls), and lymphoma (12% cases and 8% controls). Discharge ANC was 97 (0-500) in the cases and 1,067 (20-15,000) in the controls. Length of admission ranged from 2-13 days (mean of 5) in the cases and 1-18 days (mean of 4.8) in the controls. Unplanned readmissions within 96 hours of discharge were 0 and 1 in the case and control groups, respectively.

Conclusion

We find no significant difference in unplanned readmission rates after 96 hours between cases and controls. Discharging patients home on oral antibiotics before count recovery avoided longer hospital admissions for the individual patient, with no unplanned readmissions, safely allowing more time at home, lessened risk of nosocomial infection, and less healthcare spending. It is our hope this study will guide future trials and guidelines regarding febrile neutropenia in pediatric oncology.

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