

# The Effect of the Neutropenic Diet in the Outpatient Setting: A Pilot Study

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**Purpose/Objectives:** To determine whether use of the neutropenic diet in the outpatient setting decreases the number of febrile admissions and positive blood cultures associated with chemotherapy-induced neutropenia.

**Design:** Descriptive pilot study.

**Setting:** Outpatient chemotherapy unit of a medical center in a major metropolitan area.

**Sample:** Convenience sample of 28 patients aged 33–67 years beginning treatment with 1 of 13 chemotherapy regimens.

**Methods:** Twelve-week prospective study beginning on day 1 of chemotherapy cycle 1. Patients received instructions regarding the neutropenic diet before starting chemotherapy. Adherence assessment telephone calls were made at weeks 6 and 12. Hospital admission charts were reviewed at study completion.

**Main Research Variables:** Adherence with neutropenic diet, number of febrile admissions, and number of positive blood cultures.

**Findings:** Sixteen patients were compliant with the neutropenic diet, four of which were admitted for neutropenia with gram-negative rods. No significant differences were found in the rates of febrile admissions or positive blood cultures between compliant and noncompliant patients.

**Conclusions:** Clinical significance in this pilot study is related to the time required for diet education, content of diet education regarding food restrictions, and difficulty adhering to diet requirements given the multitude of side effects (e.g., nausea, vomiting, mouth sores, diarrhea) of chemotherapy.

**Implications for Nursing:** No clear evidence exists that the neutropenic diet makes a difference in overall rates of infection. Nursing research to compare the neutropenic diet with a less restrictive food safety education-focused diet is needed to guide clinical practice.

Cancer treatment has evolved, and a majority of chemotherapy regimens now are administered in the outpatient setting. The advent of high-technology homecare, growth factors, and improved antibiotic therapy have contributed to the transition. In-depth patient education related to chemotherapy drugs, schedules, and potential side effects as well as diligent postchemotherapy symptom management are significant components of the chemotherapy process. The goals of these practices are to prevent or minimize side effects experienced by patients receiving chemotherapy and aggressively manage symptoms as they occur.

One major side effect of chemotherapy is the development of infection as a result of neutropenia, or lowering of the white blood cell count that results from damage to the bone marrow and severe marrow suppression. The most important

## Key Points . . .

- ▶ The role of the neutropenic diet in preventing infections in patients receiving chemotherapy is controversial.
- ▶ No standard definition of the neutropenic diet exists.
- ▶ Further evidence-based study is necessary to determine the most effective dietary approach for neutropenia and avoid unnecessary dietary restrictions.

value to monitor is the number of bacteria-fighting blood cells (i.e., neutrophils), referred to as the absolute neutrophil count (ANC). Most patients with an ANC higher than 500 per cubic millimeter ( $\text{mm}^3$ ) of blood do not develop major infections. Once the ANC drops below  $500/\text{mm}^3$ , the chance of developing an infection increases significantly. When ANC values are higher than  $1,000/\text{mm}^3$ , infection risk is reduced significantly (Baehner, 2004). Variation among patients is common, however, and although some patients with ANCs far above  $500/\text{mm}^3$  will develop infections, others with ANCs below  $500/\text{mm}^3$  will remain infection-free.

Neutropenia occurs in many patients undergoing outpatient chemotherapy and is the most significant risk factor identified in patients with infections. Patients' risk of infection is related to the severity and duration of neutropenia (Brandt, 1990; Carter, 1993; Gaytan-Martinez et al., 2000; Greifzu, 1991; Pizzo, 1984). The white blood cell count is at its lowest point (i.e., nadir) within 10–14 days of beginning chemotherapy.

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