

## The role of the oncology nurse in prechemotherapy neutropenic risk assessment and patient outcomes

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<b>Origin of Study</b>	USA
<b>Type of Study</b>	EVALUATION OF RISK ASSESSMENT TOOL
<b>Objectives</b>	<p>Evaluate the effect of pretreatment neutropenic risk assessment on patient outcomes.</p> <p>Show that using a febrile neutropenia risk-assessment tool allows better determination of patients at greater risk for febrile neutropenia.</p>
<b>Study Design</b>	<p>Nurses at the Puget Sound Veterans Affairs Medical Center Cancer Care Clinic began using a febrile neutropenia risk-assessment tool in all patients to be treated with chemotherapy and in patients with regimen or protocol changes.</p> <p>For 1 year, data on age, gender, cancer type, risk factors for febrile neutropenia, granulocyte-colony stimulating factor (G-CSF; Neupogen) use, hospitalization for febrile neutropenia, and length of hospitalizations were collected.</p> <p>All variables were analyzed using descriptive statistics.</p> <p>The effect of the implementation of the tool was evaluated in a review of chart records. Patient outcomes in 2004, before the tool had been implemented, were compared with outcomes in 2005, after the tool had been routinely used on every patient beginning a new chemotherapy regimen.</p>
<b>Patients</b>	<p>The 88 patients studied during the first 6 months after implementation of the tool were a mean of 62 years of age (86% male); patients had cancer of the lungs (27%), head and neck (22%), colorectum (22%), gastrointestinal tract or esophagus (8%), or prostate (6%), or had lymphoma (7%) or other malignancy (8%).</p> <p>The 101 patients studied during the second 6 months after implementation of the tool were a mean of 60 years of age (96% male); patients had cancer of the lungs (36%), head and neck (17%), colorectum (16%), gastrointestinal tract or esophagus (3%), breasts (4%) or prostate (1%) or had chronic lymphocytic leukemia (8%), lymphoma (9%), or other malignancy (7%).</p>
<b>Observations</b>	<p>The incidence of febrile neutropenia-related hospitalizations after use of the risk-assessment tool was 78% lower than the incidence before its use (9.7% vs 2.1%, respectively; <math>P = 0.003</math>). The total number of hospital days also was shorter (117 vs 24 days).</p> <p>The proactive use of G-CSF was higher in the second 6 months of use of the risk-assessment tool than during the first 6 months of its use (51% vs 26%).</p> <p>The use of reactive G-CSF was 6% in the second 6 months of use and 10% during the first 6 months.</p> <p>Proactive G-CSF was used in patients at greater febrile neutropenia risk. As per the National Comprehensive Cancer Network guidelines, it was used in all patients treated with a chemotherapy regimen associated with a febrile neutropenia risk &gt; 20%; it also was used in one patient with diabetes and advanced disease and one patient with a history of neutropenia and extensive previous chemotherapy treatment.</p>

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### Conclusions

By using the febrile neutropenia risk-assessment tool, nurses initiated the appropriate actions leading to a lower incidence of febrile neutropenia-related hospitalizations and fewer total days of hospitalizations.

Through consistent risk assessment, nurses could determine which patients were at highest risk, leading to appropriate prophylactic G-CSF use in the target population.

### Discussion

Myelosuppressive chemotherapy regimens often result in neutropenia, which can lead to febrile episodes that require hospitalization. Identifying patients at high risk for neutropenia before the initiation of treatment could enable providers to make decisions about the need for proactive growth factor support. This study evaluated the benefit of using nursing staff for this activity.

In this study, neutropenia risk was assessed by the oncology clinic nursing staff for all new patients beginning chemotherapy. The value of this risk-assessment tool, as carried out by nurses, was evaluated by reviewing chart records and comparing patient outcomes in 2004 with those in 2005 after the tool entered routine use.

Investigators demonstrated that risk assessment significantly reduced the number of hospitalizations for febrile neutropenia by 78%. When neutropenia was assessed prior to chemotherapy, only 2% of patients were hospitalized for febrile neutropenia, probably because growth factor support was more liberally used up front. This practice also resulted in a decrease in reactive growth factor use.

The data support the appropriate and proactive use of colony-stimulating factors based on the individual risk of neutropenia development. A positive effect was shown on patient outcomes, with fewer episodes of febrile neutropenia and hospitalization and fewer total inpatient days. The study also showed that oncology nurses can effectively perform risk assessment.

### Key Points

- Nurses are well positioned to assess patients for risk factors of febrile neutropenia and, when appropriate, to advise other healthcare team members to initiate supportive care to ensure optimal patient outcomes.

### Reference

Doyle A, Keegan K, Mullen K, Zecha G, Boyd CA, Hutson J. The role of the oncology nurse in prechemotherapy neutropenic risk assessment and patient outcomes. Presented at the 31<sup>st</sup> Annual Congress of the Oncology Nursing Society; May 4–7, 2006; Boston, Massachusetts. Abstract 119.