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Clinical Practice Guidelines – Medical Oncology Toxicity Group

Guideline Title:	Therapeutic Use of Myeloid Growth Factors for Chemotherapy-Induced Neutropenia in High Risk and Intermediate Risk Patients - **Summary**.	**Date:** **(O):** **(R):**	Mar 31, 2012
Tumor Group:	Medical Oncology Toxicity Group	**Page:**	1 of 3
Issuing Authority:	Dr. Jehann Siddiqui Clinical Chief, Cancer Care Program	**Date Signed:**	Oct 21, 2013
Adapted From:	National Comprehensive Cancer Network "Myeloid growth factors" guideline, 2012 (10).		

Target Population:

These recommendations apply to adult patients receiving systemic therapy for solid tumors, lymphoma and non-myeloid malignancies who meet the high or intermediate risk criteria for the development of Chemotherapy Induced Neutropenia (CIN) as a result of myelosuppression.

Recommendations:

- All patients, with a diagnosis of cancer and receiving chemotherapy, who are deemed at risk for the development of CIN, and have no contraindications, should be offered prophylactic granulocyte-colony stimulating factor (G-CSF).
- Once a patient is supported with a G-CSF, treatment should be continued with each consecutive cycle unless otherwise contraindicated.
- For chemotherapy cycles ≥ 14 days, the options are: pegfilgrastim 6mg s/c once **OR** filgrastim s/c daily, at a dose suitable for the patient's weight, administered 24 hours post chemotherapy for 9-14 days.
- Filgrastim s/c daily for 7-10 days can be used for treatments equal to 14 days.
- For chemotherapy cycles < 14 days, filgrastim s/c should be administered at a dose suitable for the patient's weight. For patients < 75kg, filgrastim 300mcg s/c should be administered 24hrs post chemotherapy, and continued daily for 7-10 days. For patients ≥ 75kg, filgrastim 480mcg s/c should be administered 24 hours post chemotherapy, and continued daily for 7-10 days. Pegfilgrastim should **not** be used in chemotherapy regimens that are given less than every 2 weeks.
- A complete blood count should be performed prior to each chemotherapy administration. Additional blood work may be ordered if clinically indicated, or at the discretion of the treating physician.
- The use of G-CSFs is currently **not** recommended for patients receiving Radiation Therapy.

Supporting Evidence:

- The prophylactic use of G-CSF has been shown to reduce the incidence, length, and severity of chemotherapy-related neutropenia in small cell lung cancer, breast cancer, sarcoma, and non-Hodgkin's lymphoma (1-4).
- The use of G-CSF improves the delivery of full dose intensity of chemotherapy at the planned treatment times (5,6).
- In node-positive breast cancer and aggressive lymphoma, dose dense regimes supported by G-CSF improved disease-free and/or overall survival (7,8).
- Meta-analyses have confirmed the efficacy of prophylactic G-CSF in decreasing rates of infection and risk of neutropenia as well as, a substantial reduction in risk of infection-related mortality and early deaths during chemotherapy (9).

Qualifying Statements:

- Patients are divided into three groups based on the percentage of risk of developing FN.
  - *High Risk* - patients receiving chemotherapy regimens with a 20% risk of febrile neutropenia or higher; the use of G-CSF is required and recommended;
  - *Intermediate Risk* - patients receiving chemotherapy regimens with a 10-20% risk of febrile neutropenia; the use of G-CSF should be considered based on the presence of variables that may increase individual risk of neutropenic complications, such as age, previous neutropenic complication or co morbidities;
  - *Low Risk* – patients are considered low risk when the risk of febrile neutropenia is less than 10%; no indication for G-CSF use unless a specific patient is at significant risk of serious consequences of FN and that patient is being treated with curative or adjuvant intent.
- Primary Prophylaxis - G-CSF is recommended for the prevention of CIN in patients who have a high risk of FN. Oncologists and treating physicians should also consider the individual patient risk factors that can predispose a patient to increased complications from prolonged neutropenia.
- Secondary Prophylaxis - G-CSF is recommended for patients who have experienced a neutropenic complication from a prior cycle of chemotherapy, in which a dose reduction may compromise disease free survival or treatment outcomes.

Disclaimer:

These guidelines are a statement of consensus of the Medical Oncology Toxicity Group regarding their views of currently accepted approaches to diagnosis and treatment. Any clinician seeking to apply or consult the guidelines is expected to use independent medical judgment in the context of individual clinical circumstances to determine any patient's care or treatment.

Contact Information:

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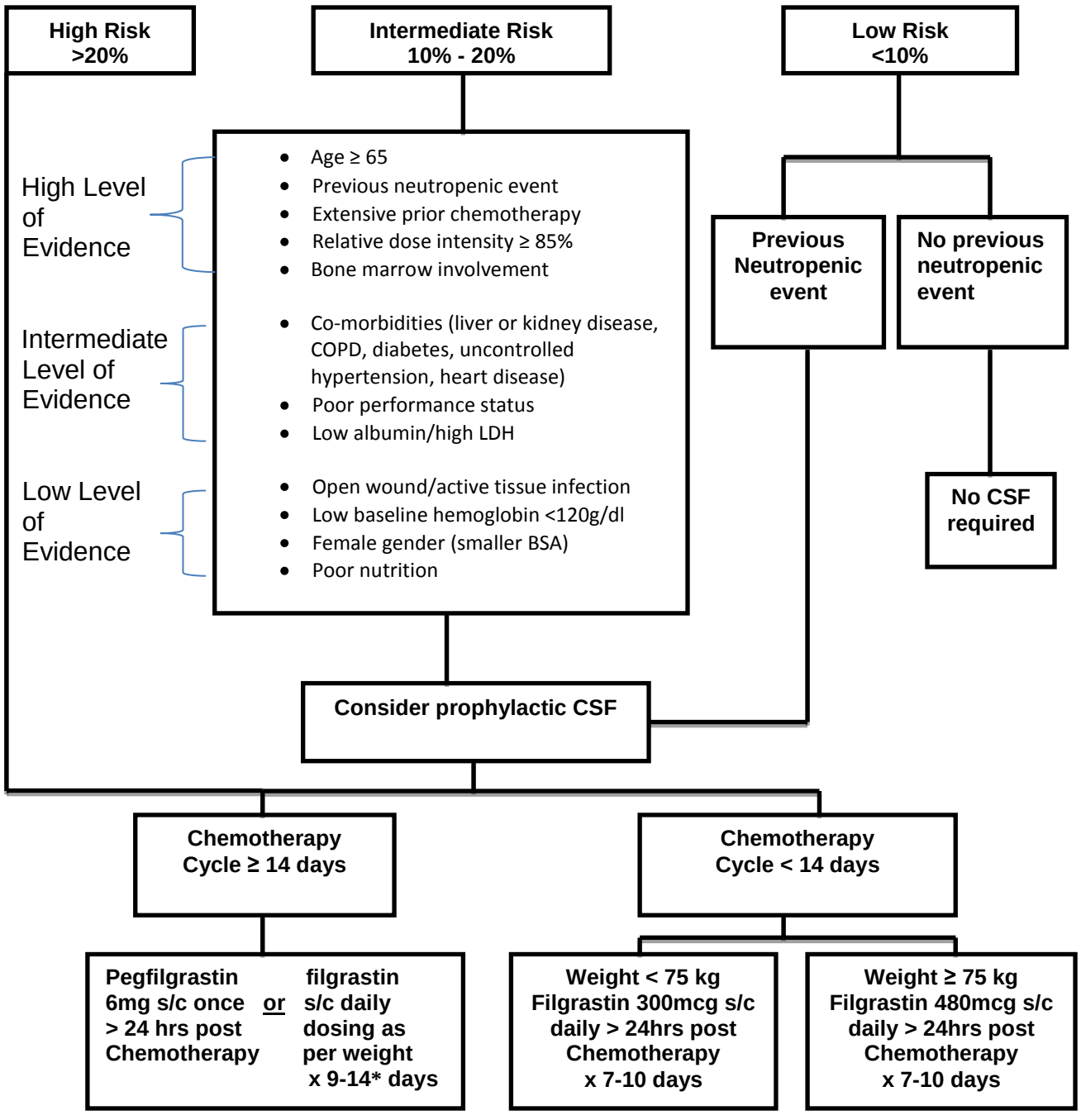
guideline on this topic or for access to any of our guidelines, please visit our Cancer Care Program website at www.easternhealth.ca

Literature Support:

1. Smith TJ, Khatcheressian J, et al. 2006 Update of recommendations for the use of white blood cell growth factors: an evidence-based clinical practice guideline. J Clin Oncol. 2006;24:3187–3205.
2. Crawford J, Ozer H, et al. Reduction by granulocyte colony-stimulating factor of fever and neutropenia induced by chemotherapy in patients with small-cell lung cancer. N Engl J Med. 1991;325:164–170.
3. Crawford J. Neutrophil growth factors. Curr Hematol Rep. 2002;1:95–102.
4. Aapro MS, Cameron DA, et al. EORTC guidelines for the use of granulocyte-colony stimulating factor to reduce the incidence of chemotherapy-induced febrile neutropenia in adult patients with lymphomas and solid tumours. Eur J Cancer. 2006;42:2433–2453.
5. Chirivella I, Bermejo B, et al. Optimal delivery of anthracycline-based chemotherapy in the adjuvant setting improves outcome of breast cancer patients. Breast Cancer Res Treat. 2009;114:479–484.
6. Pettengell R, Schwenkglenks M, et al. Association of reduced relative dose intensity and survival in lymphoma patients receiving CHOP-21 chemotherapy. Ann Hematol. 2008; 87:429–430.
7. Sung L, Nathan PC, et al. Meta-analysis: effect of prophylactic hematopoietic colony-stimulating factors on mortality and outcomes of infection. Ann Intern Med. 2007;147:400–411.
8. Lyman GH, Kuderer NM, et al. Prophylactic granulocyte colony-stimulating factor in patients receiving dose-intensive cancer chemotherapy: A meta-analysis. Amer J Med. 2002;112:406-411.
9. Aapro M, Crawford J, et al. Prophylaxis of chemotherapy-induced febrile neutropenia with granulocyte colony stimulating factors: where are we now? Support Cancer Care. 2010; 18(5):529-41.
10. National Comprehensive Cancer Network (2010) Practice Guidelines in Oncology v.1.2010. Myeloid Growth Factors. Available at: http://www.nccn.org/professionals/physician_gls/PDF/myeloid_growth.pdf.
11. Aapro MS, Bohlius J, et al. 2010 update of EORTC guidelines for the use of granulocyte-colony stimulating factor to reduce the incidence of chemotherapy-induced febrile neutropenia in adult patients with lymphoproliferative disorders and solid tumors. Eur J Cancer. 2011;47:8-32.

Appendix **Neutropenia Risk Assessment Tool**



***NOTE**: For treatments equal to 14 days, filgrastin s/c daily x 7-10 days may be used. Once initiated G-CSF treatment should be continued with each cycle.*

**Adapted from the 2010 EORTC guideline (11).*