**Algorithm for White Cell Growth Factor (G-CSF) Support**

**Step 1. Evaluate patient for risk of febrile neutropenia (FN) prior to each cycle**

Review:
- chemotherapy regimen
- patient risk factors
- treatment intent (curative vs. palliative)

**Step 2. Assess Patient Risk Factors**

In addition to the chemo regimen, these factors may increase the risk of FN:
- age > 65 years
- poor PS (ECOG >2)
- poor nutritional status
- bone marrow involvement
- advanced disease
- other serious co-morbidities (i.e. diabetes, CVD, COPD, etc.)
- extensive prior treatment
- number of myelosuppressive agents used (>2)
- presence of open wounds or active infections
- concomitant medications
- female gender
- Hb < 120 g/L

**Step 3. Prophylaxis for Febrile Neutropenia**

- **Dose Dense Chemotherapy**
- Aggressive histology NHL, >65yrs, curative intent
- **Standard Dose Chemo**
- High Risk FN (>20%)
- Intermed. Risk FN (10-20%)
- Low Risk FN (<10%)

**G-CSF DOSING**

**Filgrastim (Neupogen)** 5mcg/kg/day daily SC (rounded to nearest vial size: 300mcg or 480mcg)
- Start 24-72 hrs after chemo & treat through post-nadir ANC recovery
- Not to be given the same day as chemo

**Pegfilgrastim (Neulasta)** 6mg once/cycle SC (not routinely used in regimens < 2 weeks apart)
- Start 24 hrs after chemo
- Not to be given the same day as chemo

*See reverse for FN rates of most common chemotherapy regimens*
• The list is not comprehensive. There are other agents/regimens that have a high risk for the development of neutropenic complications.
• The exact risk includes agent, dose and the treatment setting (i.e., treatment naïve vs. heavily pretreated patients).
• The chemotherapy regimen is only one component of the risk assessment. Patient risk factors should be evaluated as well.¹ 4 5

EXAMPLES OF CHEMOTHERAPY REGIMENS WITH A HIGH RISK OF FEBRILE NEUTROPENIA (>20%)⁴

**Bladder**
- TC (paclitaxel, cisplatin)
- MVAC (methotrexate, vinblastine, doxorubicin, cisplatin)

**Breast Cancer**
- Dose Dense AC-T* (doxorubicin, cyclophosphamide, paclitaxel)
- AT (doxorubicin, paclitaxel)
- TAC (docetaxel, doxorubicin, cyclophosphamide)

**Cervix**
- TC (paclitaxel, cisplatin)

**Gastric/Head & Neck**
- DCF (docetaxel, cisplatin, fluorouracil)

**Non Small Cell Lung Cancer**
- DP (docetaxel, carboplatin)

**Non-Hodgkin’s Lymphoma**
- CHOP 14
- DHAP
- ESHAP

**Ovarian Cancer**
- Topotecan
- Paclitaxel
- Docetaxel

**Testicular Cancer**
- VIP (vinblastine, ifosfamide, cisplatin)

*In general, dose dense regimens require growth factor support for chemotherapy administration¹ 4 5

EXAMPLES OF CHEMOTHERAPY REGIMENS WITH AN INTERMEDIATE RISK OF FEBRILE NEUTROPENIA (10-20%)⁴

**Breast**
- FEC-D (fluorouracil, epirubicin, cyclophosphamide, docetaxel)
- FEC 100 (fluorouracil, epirubicin, cyclophosphamide)
- Docetaxel
- AC (doxorubicin, cyclophosphamide)
- Gemcitabine, carboplatin

**Colon Cancer**
- FOLFOX (fluorouracil, leucovorin, oxaliplatin)

**Non-Hodgkin’s Lymphoma**
- CHOP-R

**Non Small Cell Lung Cancer**
- Cisplatin, paclitaxel
- Cisplatin, docetaxel
- Docetaxel, gemcitabine
- Vinorelbine, cisplatin

**Small Cell Lung Cancer**
- Cisplatin, topotecan
- Etoposide, carboplatin

References

This algorithm developed by the following pharmacists: L. Sax & K. Levac (London Regional Cancer Program), A. Granic & M. Abdallah (Grand River Regional Cancer Centre) and T. McFarlane (Cambridge Memorial Hospital).  Endorsed by LRCP STPT, October 2008