

Guidelines for the use of haemopoietic growth factors (GCSF) in ADULTS

Granulocyte-colony stimulating factors (GCSF)

Neutropenia and infection are major dose-limiting side effects of chemotherapy. The risk of initial infection and subsequent complications are directly related to the severity and duration of neutropenia, which is dependent on the intensity of the chemotherapy regimen. A number of host- and disease-related factors may also influence the risks of neutropenia in the patient receiving chemotherapy.

Indications

GCSF may be prescribed for the following indications:

1. Severe neutropenic sepsis
2. Consider chemo support for regimens with a significant risk of febrile neutropenia and to maintain dose intensity.
3. Peripheral stem cell harvest conditioning
4. Post peripheral blood stem cell and bone marrow transplants
5. Clinical trials, where mandated in the protocol

Criteria for use

Patients with potentially curable disease e.g. germ cell tumours, breast cancer, lymphoma and Ewing's sarcoma that need to be treated on time without dose reductions.

Growth factors should not be routinely used in patients receiving palliative chemotherapy.

1. Severe neutropenic sepsis

GCSF should not be used routinely for patients who are neutropenic and afebrile or have uncomplicated fever.

It may be considered for use in high-risk febrile neutropenic patients with prognostic factors predictive of poor clinical outcome:

- Profound neutropenia ($ANC < 0.1 \times 10^9/L$)
- Uncontrolled primary disease
- Pneumonia
- Hypotension
- Multi-organ dysfunction
- Invasive fungal infection

2. Chemotherapy support

a Primary prophylaxis

May be considered in 'at risk patients' -

Patients receiving potentially curative chemotherapy, who are at high risk of developing febrile neutropenia or infection, who have

- Pre-existing neutropenia due to disease.
- Extensive prior chemotherapy.
- Previous irradiation to the pelvis or other areas containing large amounts of bone marrow.
- History of recurrent febrile neutropenia whilst receiving earlier chemotherapy of similar or lesser dose intensity.
- Conditions potentially enhancing the risk of serious infection e.g. poor performance status, decreased immune function, open wounds or already active tissue infection.
- Patients receiving high doses of ifosfamide ($>12g/m^2$).

b Secondary prophylaxis

Those patients receiving chemotherapy who have had a previous episode of febrile neutropenia and where dose reduction is not appropriate as dose reduction would compromise survival. Start at least 24 hours after chemotherapy duration of treatment varies with drug used and disease treated.

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3. Peripheral blood stem cell harvest

Follow the appropriate protocol for the indication.

4. Post peripheral blood stem cell and bone marrow transplants

GCSF may be given to patients following a stem cell re-infusion or bone marrow transplant whose counts have not recovered in the expected time period, or who become very unwell.

5. Clinical trials

See relevant studies.

In the palliative setting a dose reduction in chemotherapy may be more appropriate than the use of GCSF.

GCSF doses and duration of therapy

Refer to the relevant Network chemotherapy protocol for the regimen.

Stop the GCSF once neutrophils $\geq 1.0 \times 10^9/l$ for 2 consecutive days.

The optimum duration may be 7 days however some Clinicians may wish to stop after 5 days.

Choice of GCSF

The most cost-effective option should be selected taking into account the hospital pharmacy contract prices and local funding agreements with the PCT.

Biosimilar GCSF are clinically effective and an appropriate choice, which the Network chemotherapy group recommends in most situations.

For chemotherapy support the following presentations are suitable options:

Filgrastim

Lenograstim

Pegfilgrastim, Lipegfilgrastim

For peripheral stem cell harvest and bone marrow transplants the following presentations are suitable options.

Filgrastim Lenograstim

References

1. Smith T et al 2006 Update of recommendations for the use of white blood cell factors: an evidence based clinical practice guideline Journal of Clinical Oncology 2006 24 (19) 1-19
2. LCNDG APC/DTC Briefing document September 2008
3. Evidence review: prevention and management of neutropenic sepsis in cancer patients, 2012; National Collaborating Centre for Cancer. NICE Clinical guideline [CG151]

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