

Filgrastim

Class:

Colony Stimulating Factor

Indications:

- _Chemotherapy-induced neutropenia
- _Bone marrow transplantation
- _Peripheral blood progenitor cell (PBPC) collection
- _Severe chronic neutropenia

Unlabeled use:

- _Anemia in myelodysplastic syndrome
- _Hematopoietic stem cell mobilization in autologous transplantation in patients with non-Hodgkin's lymphoma or multiple _myeloma
- _Hepatitis C treatment-associated neutropenia

Available dosage form in the hospital:

- 150 mcg/0.6ml VIAL
- 300 mcg/ml P.F.SYRIGE
- 300 mcg/ml VIAL
- 75 mcg/0.3ml VIAL

Trade Names:

Neupogen

Doses: Note: May round the dose to the nearest vial size for convenience and cost minimization (Ozer, 2000). Do not administer in the period 24 hours before to 24 hours after cytotoxic chemotherapy.

- Myelosuppressive chemotherapy recipients with nonmyeloid malignancies (Neupogen):** SubQ, I.V.: 5 mcg/kg/day; doses may be increased by 5 mcg/kg (for each chemotherapy cycle) according to the duration and severity of the neutropenia; continue for up to 14 days until the ANC reaches 10,000/mm³. Discontinue if the ANC surpasses 10,000/mm³ after the expected chemotherapy-induced neutrophil nadir. In clinical studies, efficacy was observed at doses of 4-8 mcg/kg/day.
- Myelosuppressive chemotherapy recipients with nonmyeloid malignancies (Granix):** SubQ: 5 mcg/kg/day; continue until anticipated nadir has passed and neutrophil count has recovered to normal range.

Acute myeloid leukemia (AML) following induction or consolidation chemotherapy

(Neupogen): SubQ, I.V.: 5 mcg/kg/day; doses may be increased by 5 mcg/kg (for each chemotherapy cycle) according to the duration and severity of the neutropenia; continue for up to 14 days until the ANC reaches 10,000/mm³. Discontinue if the ANC surpasses 10,000/mm³ after the expected chemotherapy-induced neutrophil nadir. In clinical studies, efficacy was observed at doses of 4-8 mcg/kg/day.

- Bone marrow transplantation (Neupogen):** SubQ, I.V.: 10 mcg/kg/day (administer ≥24 hours after chemotherapy and ≥24 hours after bone marrow infusion); adjust the dose according to the duration and severity of neutropenia; recommended steps based on neutrophil response:
 - When ANC >1000/mm³ for 3 consecutive days: Reduce filgrastim dose to 5 mcg/kg/day
 - If ANC remains >1000/mm³ for 3 more consecutive days: Discontinue Filgrastim
 - If ANC decreases to <1000/mm³: Resume at 5 mcg/kg/day.
 - If ANC decreases to <1000/mm³ during the 5 mcg/kg/day dose: Increase filgrastim to 10 mcg/kg/day and follow the above steps.

-Peripheral blood progenitor cell (PBPC) collection: SubQ: 10 mcg/kg daily, usually for 6-7 days. Begin at least 4 days before the first apheresis and continue until the last apheresis; consider dose adjustment for WBC >100,000/mm³

-Severe chronic neutropenia: SubQ:

-*Congenital:* Initial: 6 mcg/kg twice daily; adjust the dose based on ANC and clinical response; mean dose: 6 mcg/kg/day

-*Idiopathic/cyclic:* Initial: 5 mcg/kg/day; adjust the dose based on ANC and clinical response; mean dose: 1.2 mcg/kg/day

-*Cyclic:* Initial: 5 mcg/kg/day; adjust the dose based on ANC and clinical response; mean dose: 2.1 mcg/kg/day

-Anemia in myelodysplastic syndrome (unlabeled use; in combination with epoetin): SubQ: 300 mcg, weekly in 2-3 divided doses (Malcovati, 2013) **or** 1 mcg/kg once daily (Greenberg, 2009) **or** 75 mcg, 150 mcg, or 300 mcg per dose 3 times weekly (Hellstrom-Lindberg, 2003)

-Hematopoietic stem cell mobilization in autologous transplantation in patients with non-Hodgkin's lymphoma or multiple myeloma (in combination with plerixafor; unlabeled use): SubQ: 10 mcg/kg once daily; begin 4 days before initiation of plerixafor; continue G-CSF on each day prior to apheresis for up to 8 days

-Hepatitis C treatment-associated neutropenia (unlabeled use): SubQ: 150 mcg once weekly to 300 mcg 3 times/week; titrate to maintain ANC between 750-10,000/mm³

-Treatment of radiation-induced myelosuppression of the bone marrow (unlabeled use): SubQ: 5 mcg/kg/day; continue until ANC >1000/mm³ (Smith, 2006; Waselenko, 2004)

Geriatric

Refer to adult dosing

Renal Impairment:

-Neupogen: No dosage adjustment provided in the manufacturer's labeling.

-Granix:

- Mild impairment: No dosage adjustment necessary.
- Moderate to severe impairment: No dosage adjustment provided in the manufacturer's labeling (has not been studied).

Hepatic Impairment:

No dosage adjustment provided in the manufacturer's labeling.

Common side effect:

Central nervous system: Fever (12%), Headache

Dermatologic: Petechiae (≤17%), rash (≤12%)

Endocrine & metabolic: LDH increased, uric acid increased

Gastrointestinal: Splenomegaly (severe chronic neutropenia: 30%; rare in other patients), Nausea (10%), vomiting (7%), peritonitis (≤2%)

Hepatic: Alkaline phosphatase increased (21%)

Neuromuscular & skeletal: Bone/skeletal pain (22% to 33%; dose related), commonly in the lower back, posterior iliac crest, and sternum

Respiratory: Epistaxis (9% to 15)

Cardiovascular: Hyper-/hypotension (4%), myocardial infarction/arrhythmias (3%)

Hematologic: Leukocytosis (2%)

Pregnancy Risk Factor: C