# PROCRIT® (epoetin alfa)
# PROCRIT - Every-Four-Week Dosing in Treating Anemia in Patients with Cancer

## SUMMARY


- Johnson & Johnson does not recommend the use of PROCRIT (epoetin alfa) in a manner that is inconsistent with the approved labeling.
- Initiate PROCRIT in patients on cancer chemotherapy (CT) only if the hemoglobin (Hb) is less than 10 g/dL, and if there is a minimum of two additional months of planned CT.[1]
- The Food and Drug Administration (FDA)-approved dose for the treatment of anemic cancer patients on CT is 40,000 Units (U) weekly or 150 U/kg 3 times a week.[1]
- Extended/alternative dosing has been studied in the following scenario:
  - Initiation: once every-4-weeks (Q4W) dosing.[2]


## BACKGROUND

Various studies evaluating extended or alternative dosing regimens of epoetin alfa (EPO) have been conducted in both treatment of anemia in cancer patients receiving myelosuppressive CT, as well as in anemic cancer patients not receiving CT or radiation therapy. Extended/alternative dosing regimens of EPO may potentially offer added convenience to both health care providers and the patient.[3]

## PRODUCT LABELING

### Recommended Starting Dose

***Adults:***

- 150 Units/kg subcutaneously 3 times per week until completion of a CT course or[1]
- 40,000 Units subcutaneously weekly until completion of a CT course.[1]

***Pediatric Patients (5 to 18 years):***

- 600 Units/kg intravenously weekly until completion of a CT course.[1]

### Dose Reduction

- Reduce dose by 25% if[1]:
  - Hb increases greater than 1 g/dL in any 2-week period or
  - Hb reaches a level needed to avoid RBC transfusion.
- Withhold dose if Hb exceeds a level needed to avoid RBC transfusion. Reinitiate at a dose 25% below the previous dose when Hb approaches a level where RBC transfusions may be required.[1]

### Dose Increase

- After the initial 4 weeks of PROCRIT therapy, if Hb increases by less than 1 g/dL and remains below 10 g/dL, increase dose to[1]:
  - 300 Units/kg three times per week in adults or
  - 60,000 Units weekly in adults
  - 900 Units/kg (maximum 60,000 Units) weekly in pediatric patients.
- After 8 weeks of therapy, if there is no response as measured by Hb levels or if RBC transfusions are still required, discontinue PROCRIT.[1]

## CLINICAL DATA

### Initiation: Q4W Dosing

**Shasha et al (2007)** evaluated the efficacy of EPO 80,000 U Q4W compared with 40,000 U every other week (Q2W) in cancer patients not receiving CT or radiation therapy (N=60).[2]

#### *Study Design/Methods*

- This was a prospective, open-label, randomized, multicenter study.[2]
- Patients with an active non-myeloid malignancy, baseline Hb level ≤11 g/dL, and not receiving CT or radiation therapy during the course of the study were randomized 1:1 to receive: EPO 80,000 U subcutaneously (SC) Q4W (maximum 13-week treatment period) or EPO 40,000 U SC Q2W (maximum 15-week treatment period).[2]
- If Hb >13 g/dL, EPO was withheld.[2]
- If Hb >12 g/dL or Hb increased >1 g/dL in any 2-week period, the dose of EPO was reduced.[2]
- **The primary endpoint** was hematopoietic response, defined as ≥1 g/dL increase in Hb from baseline.[2]

#### *Results*

*Patient Characteristics*

- This study was to enroll 100 patients; however, enrollment was stopped due to safety concerns on use of erythropoiesis-stimulating agents in anemic cancer patients not receiving CT or radiation therapy.[2]
- The mean baseline Hb was 10.3 g/dL in the Q4W group and 9.9 g/dL in the Q2W group. The mean Hb level was 10.2 g/dL and the mean GFR was 30.2 mL/min/1.73 $m^2$.[2]

*Efficacy*

- The modified intent-to-treat population, which included patients with ≥1 postbaseline Hb level, was included in the efficacy analysis (n=28 in the Q4W group and n=31 in the Q2W group).[2]

**Efficacy Outcomes**[2]

| | Q4W Group | Q2W Group |
|---|---|---|
| Proportion of patients who achieved a hematopoietic response, n (%; 95% CI) | 25 (89.3%; 95% CI: 71.8%-97.7%) | 28 (90.3%; 95% CI: 74.2%-98.0%) |
| Median time to achieve a hematopoietic response, days | 14 | 20 |
| PRBC transfusion rates from day 29 to end of study, n (%) | 3 (10.7) | 1 (3.2) |

**Abbreviations:** CI, confidence interval; PRBC, packed red blood cells; Q2W, every 2 weeks; Q4W, every 4 weeks.

*Safety*

- Fewer patients in the Q4W group (n=20; 69%) required EPO dose reductions or dose hold compared with patients in the Q2W group (n=27; 87%).[2]
- No clinically relevant thrombotic vascular events were reported in the Q4W group. In the Q2W group, 2 events (myocardial infarction and deep vein thrombosis) were reported in 1 patient.[2]
- Two deaths were reported in the Q2W group, both attributed to disease progression. discomfort, and peripheral vascular disorder). MI and peripheral vascular disorder were considered clinically relevant. Of the 5 patients who experienced a TVE, none had a

Hb >12 g/dL or a Hb rise in excess of 1.0 g/dL over the previous 2–week period at the time that the event occurred.[2]

- Two deaths were reported in the 20,000 IU Q2W group and 1 in the 20,000 IU Q4W group during the study.[2]

## LITERATURE SEARCH

A literature search of MEDLINE®, Embase®, BIOSIS Previews®, and Derwent Drug File (and/or other resources, including internal/external databases) pertaining to this topic was conducted on 23 October 2024.

## REFERENCES


1. PROCRIT (epoetin alfa) [Prescribing Information]. Horsham, PA: Janssen Products, LP; https://imedicalknowledge.veevavault.com/ui/approved_viewer?token=7994-2b94d073-29d7-4d37-b818-d662fd16ca16.

2. Shasha D, Dawkins F, Luo D, et al. Investigation of epoetin alfa (EPO) 80,000 units (U) every 4 weeks (Q4W) vs. 40,000 U every 2 weeks (Q2W) in patients with cancer not receiving chemotherapy (CT) or radiation therapy (RT): final results. *Blood*. 2007;110(11):3775.

3. Muller RJ, Baribeault D. Extended-dosage-interval regimens of erythropoietic agents in chemotherapy-induced anemia. *Am J Health Syst Pharm*. 2007;64(24):2547-2556.