



Drug Class Review Monograph – GPI Class 82 – Hematopoietic Agents

Review Time Frame: ~~February 02, 2016~~ ~~January 2015~~ ~~– 01/January 2017~~
Previous Class Review: N/A

Background:

Hematopoietic agents are involved in the formation of blood cells. There are various drug classes that make up this unique class of medication, many of which are discussed below:

- Hematopoietic growth factors are a family of glycoproteins that help to boost marrow function. Erythropoietin, granulocyte colony-stimulating factor, and granulocyte/macrophage colony-stimulating factor are some of the common hematopoietic growth factors. Erythropoietin regulates the production of red blood cells by stimulating the division and differentiation of committed erythroid progenitor cells in the bone marrow. Granulocyte colony-stimulating factors are involved in the regulation and production of neutrophils to increase their migration and cytotoxicity. Granulocyte/Macrophage colony-stimulating factors support the survival, clonal expansion, and differentiation of progenitors in the granulocyte-macrophage pathways as well as megakaryocytic and erythroid progenitor cells. Stem cell factors interact with hematopoietic progenitor cells.
- Cyanocobalamin is a coenzyme for various metabolic functions, including fat and carbohydrate metabolism and protein synthesis, used in cell replication and hematopoiesis.
- Folic acid is the precursor for tetrahydrofolic acid and methyltetrahydrofolate which are essential for the maintenance of normal erythropoiesis.
- Iron allows the transportation of oxygen via hemoglobin; ~~it replaces supplementation~~ provides the necessary iron in hemoglobin and other enzymes. Normal erythropoiesis is dependent on the concentration of iron and erythropoietin available in the plasma.
- ~~Normal erythropoiesis is dependent on the concentration of iron and erythropoietin available in the plasma.~~
- Hydroxyurea increases red blood cell (RBC) hemoglobin F levels, RBC water content, and deformability of sickled cells, ~~and as well as~~ alters adhesion of RBCs to endothelium.

New ~~†~~ Treatment guideline recommendations pertaining to hematopoietic agents:

- ~~None identified~~
- ~~The American Society of Clinical Oncology Clinical Practice Guideline update recommends the addition of tbo-filgrastim and filgrastim sndz, moderation of the recommendation regarding routine use of hematopoietic colony stimulating factors (CSFs) in older patients with diffuse aggressive lymphoma and in favor of high dose intensity chemotherapy in urothelial cancer.~~

Newly approved drugs:

- ~~None identified~~
- ~~March 06, 2015 Zarxio (filgrastim sndz) solution for injection~~

Formatted: Space After: 10 pt

Formatted: Tab stops: 2.97", Left

Formatted: Font: 12 pt, Not Italic

Formatted: Font: 12 pt, Not Italic

Formatted: Font: 12 pt, Not Italic

Formatted: Font: 12 pt, Not Italic

Formatted: Font: 12 pt, Not Italic

Formatted: Font: Not Italic

Formatted: Space After: 12 pt

Formatted: Indent: Left: 0", First line: 0"

Formatted: Indent: Left: 0", First line: 0"

Formatted: Bulleted + Level: 1 + Aligned at: 0" + Indent at: 0.25"



Formatted: Right

Newly approved formulations:

- None identified

Formatted: Bulleted + Level: 1 + Aligned at: 0" + Indent at: 0.25"

Newly approved generics:

- None identified

Discontinued drugs:

- None identified

FDA Safety Alert/black box warnings:

- None identified

Formatted: Font: 12 pt, Bold, Font color: Black

Formatted: Bulleted + Level: 1 + Aligned at: 0" + Indent at: 0.25"

Pipeline alerts:

Agents pending FDA approval include:

*generic availability

SC subcutaneously

Formatted: Font: 12 pt, Bold

Formatted: Space After: 10 pt

1. Sieff CA. Introduction to recombinant hematopoietic growth factors. Negrin RS, Tirnauer JS. (Ed), UpToDate. Waltham MA. Accessed January 2016.
3. US Script Oracle PBM: Medi-Span® Master Drug Data Base. October 2015
4. Smith TJ, Bohlke K et al. Recommendations for the use of WBC growth factors: American society of clinical oncology clinical practice guideline update. J Clin Oncol. 2015 Oct;33(28):3199-212. doi: 10.1200/JCO.2015.62.3488

Formatted: Line spacing: single

Formatted: Font: (Default) Times New Roman