AETC AIDS Education & Training Center Program Mountain West

HIV and Anemia

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Hematology / Medical Oncology

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Disclosures

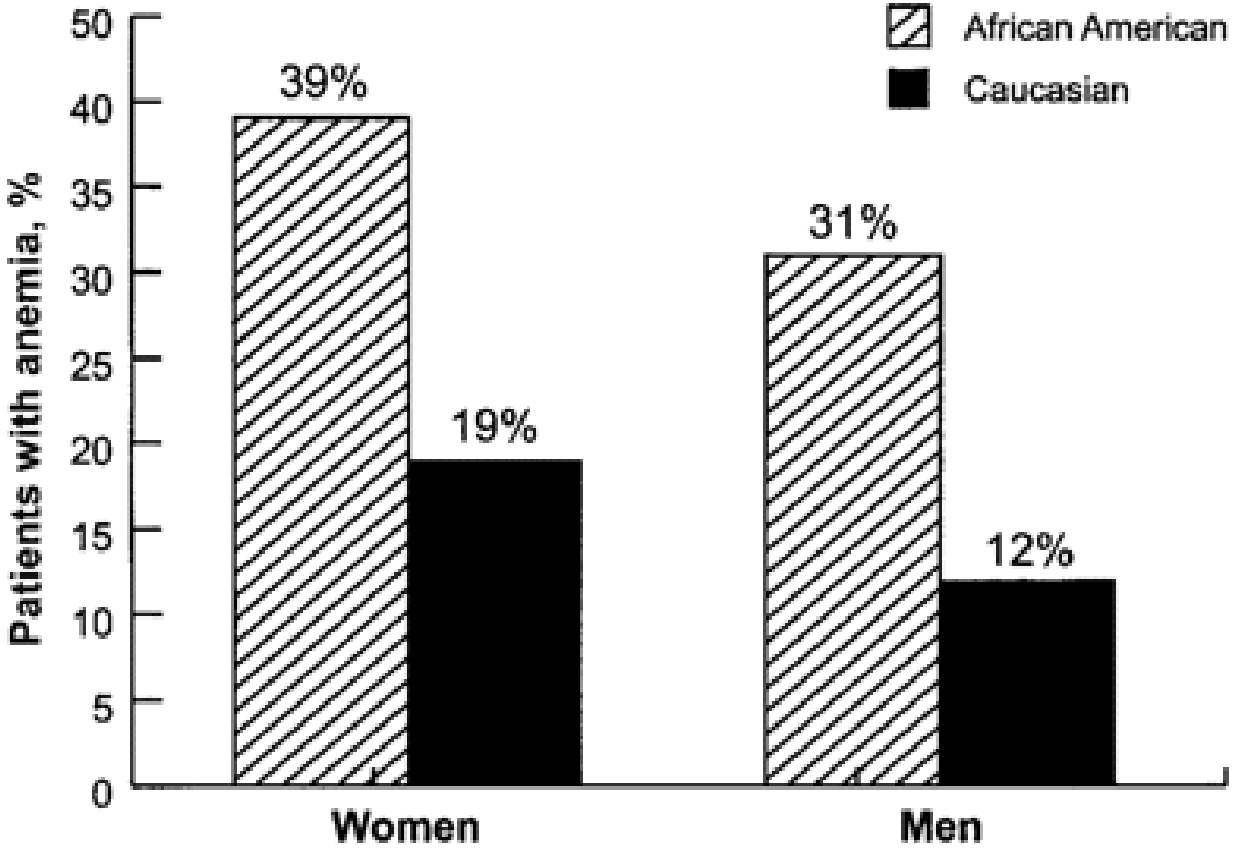
No conflicts of interest or relationships to disclose

- Patient is a 36 year old woman, diagnosed with HIV 12 years ago, on ART who presents with 6 month history of exertional dyspnea.

Anemia

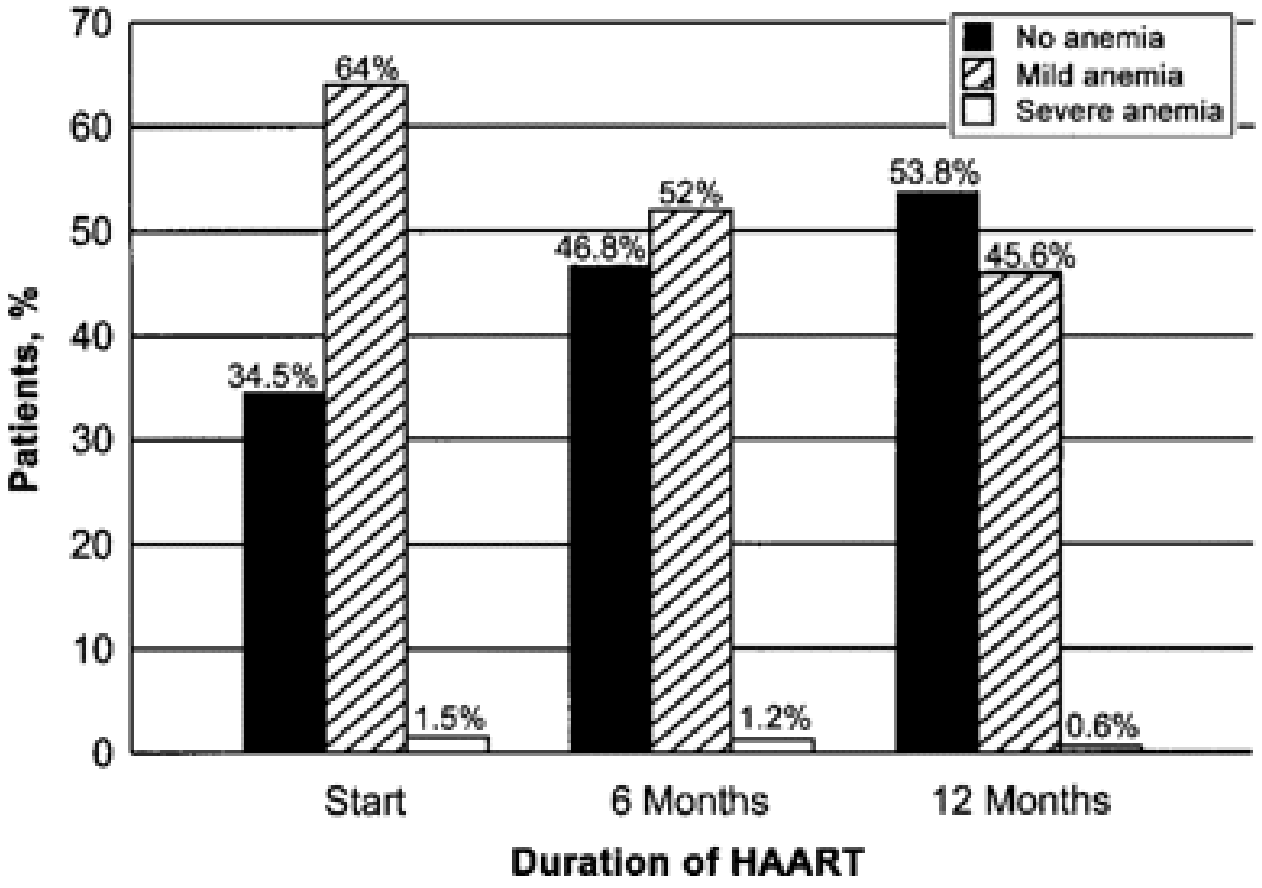
- Common among patients with HIV/AIDS
- Degree of anemia correlated with HIV/AIDS progression
- Associated with decreased median survival
- ART appears to correct, in part, the anemia
  - Decreased frequency in the era of wide access to ART
  - Remains an independent risk factor for mortality even after starting therapy

Prevalence of anemia, by race, in a cohort of 969 HIV-infected patients, 2002



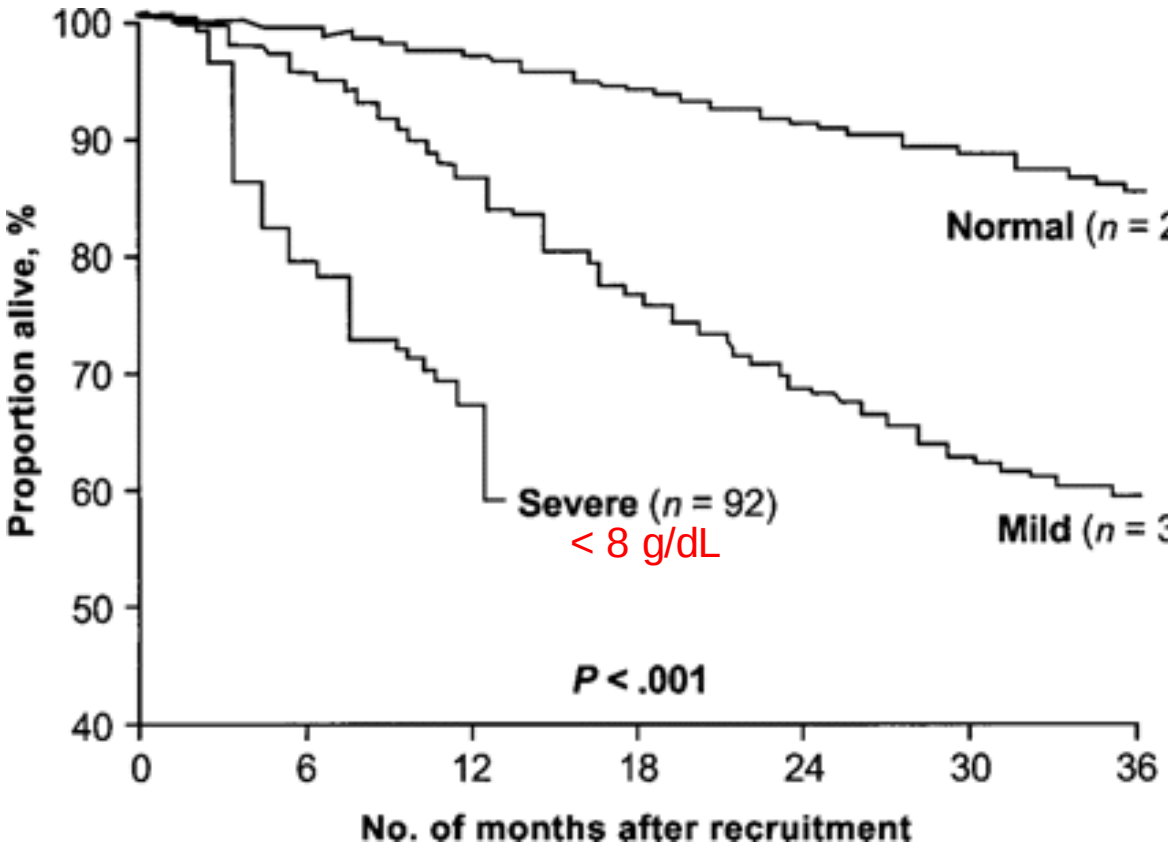
Volberding et al. CID: 38 (10) 2004.

Prevalence of anemia during ART



Creagh et al. IDSA 2002

Survival by degree of anemia



> 14 g/dL / 12 g/dL

< 8 g/dL

≥ 8 g/dL

Mocroft et al. AIDS 13; 1999.

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Decreased RBC production

- Infiltration of the bone marrow
  - Cancer or infection
- Myelosuppressive medication
- Decreased production of EPO (or decreased response)
- Hypogonadism

Ineffective RBC production

- Nutritional deficiencies
  - Iron
  - Folic acid
  - B12

Increased RBC destruction

- HLH
- DIC
- TTP
- G6PD
- Medications

Multifactorial Pathogenesis

- Direct effect of HIV
- Opportunistic infections
- Malignancies (lymphoma, KS)
- Micronutrient deficiency
- Drug effect

Etiology

- Anemia of chronic disease
- Myelosupressive drugs (e.g., zidovudine, antimicrobials, and anti-neoplastic agents)
- Hypogonadism
- Vitamin B_{12}, iron, or folate deficiency
- Hemophagocytic histocytosis
- Melofibrosis or myelodysplasia
- Neoplasia (e.g., non-Hodgkin lymphoma)
- Opportunistic bone marrow infections (e.g., infection with cyto-megalovirus, parvovirus B19, *Mycobacterium avium* complex, or *Cryptococcus neoformans*)

Volberding. Clin Ther 2000

Drugs

Antiretrovirals
Zalcitabine
Zidovudine
Antiviral agents
Ganciclovir
Foscarnet
Cidofovir
Antifungal agents
Flucytosine
Amphotericin
Anti–*Pneumocystis carinii* agents
Sulfonamides
Trimethoprim
Pyrimethamine
Pentamidine
Antineoplastic agents
Cyclophosphamide
Doxorrubicin
Methotrexate
Paclitaxel
Vinblastine
Liposomal doxorubicin
Liposomal daunorubicin
Immune response modifiers: IFN-α

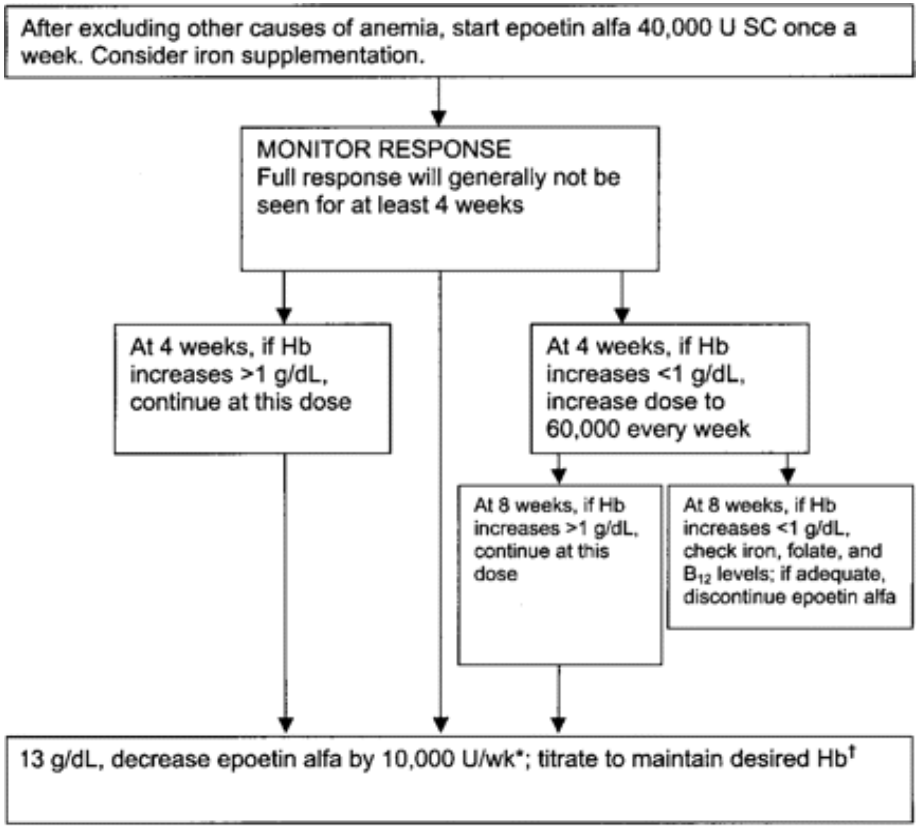
Levine Medscape Clinical Management Series 1999

Diagnostic Approach

- Review Blood Smear
- MCV
  - Low→ iron studies
  - High → folate / B12, drugs (AZT, chemo)
  - Normal → HIV, marrow infection (parvo), HIV
- Reticulocyte count
  - High →hemolysis (autoimmune, MAHA, G6PD)

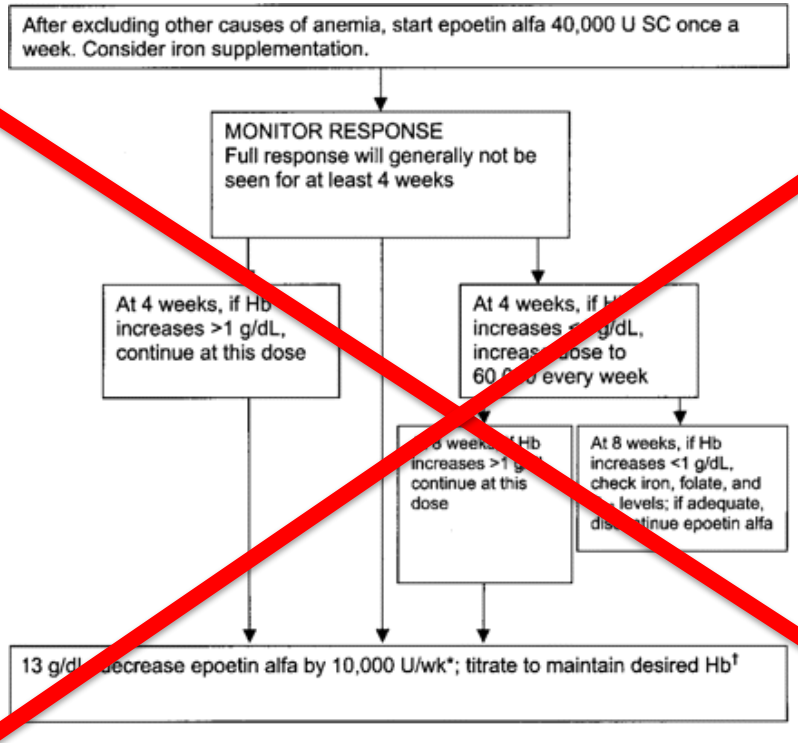
Treatment


250 mL
EMPTY
CONTAINER
SINGLE-USE
I.V. CONTAINER
FOR ADMIXING
COMPATIBLE MEDICATIONS



*If Hb is >15 g/dL, hold epoetin alfa and restart when Hb is <12 g/dL, using dose reduced by 10,000 U/wk.

†During dose adjustment, monitor Hb every 2 to 4 weeks. Allow at least 4 weeks to assess dose response.



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