The complex management of anemia in the patient with chronic kidney disease (CKD) will intensify as the renal production of erythropoietin is lost. The ESRD patient loses the biochemical mechanisms by which the glomerular nests in the kidneys react to low oxygen tension by releasing erythropoetin. (1) Pathologic causes for the kidney disease need to be identified and addressed simultaneously to dialysis. It is the advanced use of synthesized biologics (ie. epogen) and pharmacologic supplements (ie. folate, vitamin B12, iron sucrose, etc.) which has integrated the pharmacist’s multidisciplinary background into the clinical and cost effective functionality in the dialysis team.

The role of the renal pharmacist in anemia management of the CKD patient requires the extended vigilance of Renal Care Center based and home based pharmaceutical management in order to meet and maintain the Kidney Disease Outcomes Quality Initiative (KDOQI) of 11-12 g/dl.

Comorbidities of our ESRD Patients
Including but not limited to: Sickle Cell Anemia, Multiple Myeloma, Pancreatic Cancer, Diabetes, DJD, RA, GI Bleed, GERD, COPD, MI, CHF, Hypertension, CVA, Thrombocytoopenia, Neuropathy, Hyperlipidemia, Hypothyroidism.

Effects of Anemia on the ESRD Patient
• Fatigue
• Muscle Weakness
• Decreased Concentration
• Poor Memory
• Reduced Cold Tolerance
• Decreased Libido
• Reduced Appetite
• Increased Cardiovascular Disease
• Increased Hospitalization

Introduction/Background

Objectives

Primary
To maintain Hemoglobin levels within KDOQI Guidelines target range (11-12g/dl)

Secondary
• To monitor and assess the cost to clinical outcome

Methods

• Formation of an Anemia Management Team (Pharmacist, RN & Dietitian)
• Develop & implement a policy for establishing and maintaining levels within target range
• Pharmacist streamlined Epo dosing choices
• Anemia Management Team meets every month for each shift of patients to review Hgb/Hct levels
• Each member maintains direct patient contact with special emphasis in their specialty. The coordinated compilation of data from patient interviews and laboratory results are reviewed weekly unless patients are found to be symptomatic.

Pharmacist Role

As part of the Anemia Team determination of Epo, Iron and Vit C dosing

Approximately 200 patient interviews per month.
Patient Interviews questions regarding: any blood loss in stools or urine, any recent surgical procedures, any blood loss during dialysis, menses, infection, history of kidney oxalates, medical and medication history.

Pharmacist provides education to staff in Dialysis Unit.
Pharmacist provides education to hospital based nurses on Anemia.

Laboratory Testing

Monthly Hgb/Hct levels drawn
Quarterly Iron Panels for pts on Maintenance dose IV Iron (T-Sat>20 and Ferritin<800)
Iron Panels drawn at the end of Iron Loads (T-Sat<20 and Ferritin<500) 48hrs after completion
Weekly Hgb/Hct for patients with Hgb over 12 g/dl (hold Epo dose)

Results

Pharmacist contributions in cost savings

Cost Savings due to Pharmacist streamlining *available Epo doses for the Valley Hospital Fair Lawn RCC Unit
2006 $653,771.70
2007 $469,498.40
2008 $426,177.10
Total saving over 2 years = $184,273.30
* Initiated changes in March 07

Conclusion/Discussion


References