KDIGO/KSN Joint Conference

# Anemia Guideline and Iron Therapy Conference Update

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Anemia is a common complication in patients with chronic kidney disease (CKD). Although this condition most often occurs in those with glomerular filtration rate (GFR) below 30 ml/min, mild degrees of anemia are observed in early stages of CKD with a reported prevalence rate of 12%. As CKD progresses, the prevalence of anemia dramatically increases to over 90% by the time maintenance dialysis is required. Though the causes of anemia associated with CKD are multifactorial, some of the primary causal factors include: erythropoietin deficiency, iron deficiency, presence of uremic inhibitors and inflammatory factors, and overproduction of hepcidin.

In the recent KDIGO Anemia Guideline, a stepwise approach to the effective management of anemia in CKD involves: 1) excluding other causes of anemia; 2) addressing iron deficiency; 3) utilizing erythropoiesis –stimulating agent (ESA); and 4) employing blood transfusions as the means of last resort.

Both absolute and functional iron deficiency are often observed in patients with advanced CKD and treatment with iron therapy has clearly shown to be effective in increasing hemoglobin (Hgb) levels and improving ESA dose response. Although iron can be administered orally or intravenously, the effectiveness of the enteral route is limited by poor patient adherence due to gastrointestinal side effects and absorption interference by medications such as phosphate binders, proton pump inhibitors, and certain antibiotics.

In particular, iron requirements in dialysis patients are far too great to be met by oral supplementation to effectively increase Hgb or iron indices. Despite the known benefits of iron therapy, there are still major uncertainties among various intravenous (IV) preparations concerning their long-term safety and efficacy, given the paucity of hard patient outcomes in large prospective randomized controlled trials.

A recent survey has revealed a substantial increase in IV iron use among dialysis patients in 12 countries from 1999 to 2011. Much of this increase in iron utilization may be attributed to the minimization of ESA use as recent clinical trials suggested safety concerns with full normalization of Hgb with ESAs.

The issue of whether iron use could increase the risk of infection has been reviewed as far back as 1999 and data have suggested that excess iron can lead to impaired neutrophil and T-cell function, and serve as a growth factor for bacteria and other pathogens. The current KDIGO guideline has taken a cautious approach in advising avoidance of IV iron during active systemic infections.