IRON MANAGEMENT IN CHRONIC KIDNEY DISEASE

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Recognising and treating iron deficiency anaemia in chronic kidney disease patients should be the first line of management. Assessment of iron status must occur before commencing supplementary erythropoiesis stimulating agents (ESA).

Iron deficiency is common in the chronic kidney disease (CKD) population and results from recurrent blood loss through dialysis, blood tests, and the bowel as well as reduced intake and absorption. Iron deficiency needs to be considered in terms of both absolute and functional iron deficiency. Clinicians need to acknowledge the shortcoming for both ferritin and transferrin saturation in assessing iron status.

Controversies over iron use were the topic of a recent KDGO conference:

1. **Iron overload –** Organ toxicity associated with iron overload depends on various factors including the magnitude and speed of iron accumulation. End organ damage from IV iron administration in CKD patients has not been unequivocally established.
2. **Oxidative stress –** This may occur in the evolution of CKD resulting in overproduction of reactive oxygen/nitrogen species or impairment of intracellular antioxidant enzyme activities. However, measurement of these various biomarkers is inconsistent and not widely available in clinics.
3. **Risk of infections –** There have been mixed results looking at a critical review of studies evaluating infection risk associated with either ferritin concentration or iron usage.
4. **Hypersensitivity to iron –** Concerns regarding IV iron safety largely originate from older formulations containing dextran. The general classification of hypersensitivity refers to anaphylactic reactions, minor infusion reactions or a flare in pre-existing immune and/or inflammatory conditions eg. rheumatoid arthritis. Unfortunately, there are no established or validated tests that predict or confirm iron hypersensitivity.

There are many outstanding research issues such as the predictive value of hepcidin, long term safety and efficacy data of intravenous iron and methods to determine body iron stores and tissue distribution in CKD patients.