Iron therapy: Clinical practice pattern in Korean hemodialysis patients

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Iron deficiency, absolute or functional, is a major cause of low hemoglobin levels and resistance to erythropoiesis-stimulating agents (ESA) in hemodialysis patients. It is estimated that a hemodialysis patient may lose 1000-2000 mg of iron yearly due to increased external losses of iron (residual blood in the circuits or dialyzers, frequent blood samplings, and vascular access procedures, etc.). The iron deficiency is further aggravated by decreased bioavailability of the body's storage of iron or a deficit in intestinal iron absorption. Therefore, adequate iron supplementation is a critical component in the treatment of anemia in most hemodialysis patients. Most national treatment guidelines suggest prescribing iron supplementation based on iron status tests [transferrin saturation (TSAT) and serum ferritin] as well as hemoglobin levels. Iron supplementation is usually available as oral and intravenous forms. The oral supplementation, in particular with ferrous salts, is frequently associated with a gastro-intestinal side effects and poor absorption. Intravenous (IV) iron therapy is superior to oral iron in terms of fewer gastro-intestinal side effects and greater achieved hemoglobin level and a lower ESA dose. In hemodialysis patients, the ready IV access and convenience of IV iron administration supports the preference for the IV over oral iron. Some clinical practice guidelines suggest a trial of IV iron in anemic hemodialysis patients with suboptimal iron status to increase hemoglobin levels. In Korea, reimbursement for iron therapy in end-stage renal disease (ESRD) patients is determined by Health Insurance Review & Assessment Service (HIRA), which is a part of National Health Insurance Service. Current approved criteria for IV iron therapy in ESRD patients undergoing dialysis treatment are hemoglobin level less than 11 g/dL and serum ferritin below 100 ng/ml or transferrin saturation below 20% (in peritoneal dialysis patients, only those who do not tolerate oral iron therapy are eligible for IV iron therapy). Recently published data from Korean Clinical Research Center for ESRD validated association between hemoglobin levels/ESA dose and survival in Korean hemodialysis patients. In the study, hemoglobin level of 10~11 g/dL showed favorable survival whereas approximately 50% of patients reported serum ferritin level below 200 ng/ml and TSAT below 30%. The overall prescription rate of IV iron was 8.1% which is much lower than that of the Dialysis Outcomes and Practice Patterns Study (DOPPS). Such low IV iron use may be due to HIRA's strict reimbursement policy or unresolved safety issues with IV iron preparations leading to a more conservative use among nephrologists. DOPPS and Taiwan data have reported increasing use of IV iron and favorable outcome by implementing wider criteria for IV iron supplementation, respectively. Currently an ongoing randomized controlled PIVOTAL Trial (**P**roactive **IV** ir**O**n **T**herapy in haemodi**AL**ysis patients) is investigating the safety and optimum amount of IV iron that hemodialysis patients should receive. Nephrology stakeholders in Korea should also initiate clinical studies of IV

iron for their dialysis population.