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Anemia and the Heart in CKD

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Chronic kidney disease (CKD) has been known as a common risk factor for morbidity and mortality in patients with heart failure. Heart failure which causes a decrease of cardiac output, may results in a deterioration of renal perfusion. Renal dysfunction may inhibit erythropoietin production and induce renal anemia, leading to an increase of cardiac workload. Either the heart or kidney, leads to dysfunction of the other, and the dysfunctional interplay between these organs may lead to the development of anemia. Thus, it has been reported that CKD, chronic heart failure, and anemia have an additive effect on mortality, so-called "cardiorenal-anemia syndrome".

Cardiorenal-anemia syndrome occurs in approximately 20% of all patients hospitalized for heart failure. Although pathophysiological mechanisms causing anemia are multifactorial, several studies have identified strong independent associations of iron deficiency with mortality in patients with heart failure. Although the impact of hemoglobin normalization using erythropoietin stimulating agent in patients with heart failure has not been recommended, the correction of iron deficiency in CKD reduced the risk of recurrent heart failure hospitalizations. However, in a meta-analysis of 4 randomized controlled trials (including AFFIRM-AHF), treatment with i.v. iron was associated with a 29% reduction in the risk of hospitalization for heart failure but did not affect all-cause or CV mortality.

This lecture will focus on the recent advances in developments, markers, treatment for anemia and heart failure in patients with CKD.