

Inpatient Anemia Management in Heart Failure with Intravenous Iron Replacement

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Background: Intravenous (IV) iron administration has been shown to improve symptoms and quality of life in patients with heart failure and concurrent iron deficiency anemia (IDA). We aimed to evaluate the effect of inpatient administration of IV iron (iron sucrose) on clinical outcomes in the heart failure population with concomitant anemia.

Methods: This was a retrospective cohort analysis that evaluated the use of IV iron in patients admitted to SLHS with a diagnosis of heart failure and anemia between January 1, 2019 and December 31, 2019. Comparison was made between those who received IV iron during their index admission and those who did not. All patients greater than 18 years old admitted with a hemoglobin of less than 13 mg/dL from their initial complete blood count on admission. Patients were excluded from the analysis if they had known hypersensitivity to iron products, history of hemoglobinopathy, had a primary billing diagnosis of a serious infection, pregnant, or have end stage renal disease. Data was collected via automated report and chart review. The primary outcome was all cause readmission up to 30 days after discharge, comparison was made between all patients who received at least one dose of iron sucrose during their admission against those who did not. Secondary outcomes were heart failure readmission at 30 days post-discharge, blood transfusion required at readmission, and length of stay. Groups were matched by propensity score for sex, age, body mass index, anemia level at admission, baseline hemoglobin, past medical history of cancer, chronic kidney disease, coronary artery disease, and diabetes mellitus.

Findings: The total number of encounters included during our study period was 5,479. We matched 441 in the IV iron group to 338 in the control group. All cause readmission at 30 days was observed in 107 patients in the IV iron group vs 213 in the control group (24.3% vs 63%, $p < 0.001$). Heart failure readmission was observed in 25 patients in the IV iron group vs 72 in the control group (5.7% vs 21.3%, $p < 0.001$). Transfusion of blood products was required at readmission in 23.4% in the IV iron group vs 23% in the control group ($p = 0.94$), and the average length of stay was longer with IV iron use (9.6 vs 6.4 days, $p < 0.001$).

Conclusion: Treatment of anemic, iron deficient heart failure patients with IV iron while inpatient demonstrated a reduction in all cause and heart failure readmission at 30 days. There was no difference in need for transfusion of blood products at readmission, and IV iron use was associated with longer lengths of stay. While this study confirmed the benefits of IV iron administration to heart failure patients with IDA, as was observed in previous literature, further analysis is needed to determine the optimal timing and population for its use.