**Cost analysis of darbepoetin alfa versus epoetin alfa-epbx in hemodialysis patients**

Anemia associated with chronic kidney disease (CKD) is often treated using erythropoietin stimulating agents (ESAs) such as darbepoetin alfa (DPO) and epoetin alfa (EPO). While the efficacy and safety of ESAs on the market are generally equivalent, the New Mexico Veterans Affairs Healthcare System (NMVAHCS) uses DPO for its favorable cost relative to alternatives. The NMVAHCS utilizes a protocol that specifies DPO doses and monitoring for Veterans on hemodialysis (HD) with CKD-associated anemia. In 2018, the FDA approved an EPO biosimilar, epoetin alfa-epbx (EPO-epbx), which may offer a cost savings opportunity compared to DPO and EPO due to its low acquisition costs.

The primary objective of this project was to compare the cost of DPO used in Veterans with CKD-associated anemia to an equivalent dose of EPO-epbx. Secondary objectives were to evaluate the appropriateness of DPO administration and monitoring.

This project was a single-center, retrospective chart review at the NMVAHCS classified by the facility IRB as non-research. Patient selection included those who received at least one dose of DPO at an outpatient HD session between July 1 and October 31, 2020. The observation window included the 12 months preceding the last documented DPO dose within this period as a reflection of annual utilization. All electronic chart review was conducted using the VA’s Computerized Patient Records System. Information obtained from the chart included demographic data, DPO doses, vital signs, and laboratory values. Patients were excluded if they were on peritoneal dialysis or if they received HD on an inpatient basis. Administered DPO doses were converted to EPO-epbx using minimum and maximum dose conversion ratios (DCR) found in the literature and costs were calculated using average wholesale prices provided by a wholesale distributor.

Over the 12-month observation period, 32 patients received 1003 DPO doses costing a total of $501,598. Equivalent EPO-epbx doses at the minimum (1:200) and maximum (1:450) DCR totaled $394,578 and $886,124, respectively. The breakeven DCR was 1:250. Of the DPO doses administered, 44 were given outside criteria specified in the protocol, including elevated blood pressure (24 doses), hemoglobin over 12 mg/dL (12 doses), or uncorrected iron levels (8 doses). No protocol deviations resulted in documented harm to the patient or necessitated additional interventions. In conclusion, EPO-epbx may represent a cost savings opportunity versus DPO at dose conversion ratios below 1:250 when procured at AWP. Secondary outcomes demonstrated few deviations from the protocol during the observation period.