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Comparison of clinical outcomes between two different erythropoietin-stimulating agents in patients initiating dialysis

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Objectives: The objective of this study was to compare the clinical outcomes of darbepoetin with that of epoetin in patients initiating dialysis using nationwide prospective cohort registry, Clinical Research Center registry for end-stage renal disease (CRC-ESRD).

Methods: Among 2208 prevalent dialysis patients, 840 HD (ESA-free=194, epoetin=429, darbepoetin=217) and 416 PD (ESA-free=146, epoetin=140, darbepoetin=130) patients were finally selected for analysis from CRC-ESRD database between Apr 2009 and Aug 2015. The patients who used continuous erythropoietin receptor activator were excluded. The primary endpoint was all-cause mortality, and the secondary endpoints were difference in hemoglobin after 3 months-treatment of each ESA and CVD-related mortality. Kaplan-Meier method and log rank test were used to assess survival and hospitalization estimates, and p-value <0.05 was considered statistically significant.

Results: Patients using epoetin or darbepoetin showed lower baseline hemoglobin level than ESA-free group in both HD and PD (p<0.001). And increase in hemoglobin level during 3 months of treatment with each ESA showed similar results (hemoglobin change from baseline, epoetin vs. darbepoetin; +2.09 vs. +1.92, p=0.373 in HD; +1.43 vs. +1.80, p=0.157 in PD). All-cause mortality was not different among ESA-free, epoetin and darbepoetin groups (p=0.444 in HD, p=0.050 in PD). And CVD-related mortality was also not different among different ESA use (0.079 in HD, 0.683 in PD).

Conclusions: The ESA treatment with epoetin and darbepoetin was similarly effective in increase of hemoglobin and tolerable in terms of mortality in patients initiating dialysis.