

CONTINUOUS ERYTHROPOIESIS ACTIVATOR HAS A FAVORABLE EFFECTS FOR IRON UTILIZATION AMONG PERITONEAL DIALYSIS PATIENTS WITHOUT ABSOLUTE IRON DEFICIENCY

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INTRODUCTION AND AIMS

- Erythropoietin stimulating agents (ESAs) were widely used for treatment of renal anaemia in chronic kidney disease (CKD).
- Recently, continuous erythropoiesis receptor activator (CERA) was introduced as a new therapeutic option for CKD patients with renal anaemia and its favorable effects for iron utilization has been suggested among end-stage renal disease (ESRD) patients on hemodialysis (HD) in a few studies.
- We investigated the iron metabolism of ESRD patients on peritoneal dialysis (PD) using CERA or darbepoetin-alpha (DA) for treatment of renal anaemia.

METHODS

- Design: Retrospective cohort study
- Setting: Single Japanese center (Showa University Fujigaoka Hospital)
- Patients: Aged 20 years or older and on PD more than six months using ESAs (CERA or DA) for renal anaemia.
 - Inclusion criteria: without absolute iron deficiency; serum ferritin < 100ng/mL and transferrin saturation (TSAT) < 20% defined by Japanese Society for Dialysis Therapy (JSDT).
 - Exclusion criteria: with having occurred gastrointestinal bleeding or received red blood cell transfusion within three months before the baseline.
- Main exposure to be tested: ESA use (CERA vs. DA)
- Main outcome measure: The change rate of serum ferritin (% delta-ferritin) was measured each three months
- Statistical analysis: Multiple linear regression analysis was employed to estimate the association between ESA use (CERA vs. DA) with the change rate of serum ferritin, adjusting for potential confounders such as age, gender, PD vintage, hemoglobin (Hb), serum albumin, oral iron preparation, and diuretic use as a surrogate parameter of residual renal function.

RESULTS

Characteristics of the cases by the ESA use (CERA vs. DA)

	CERA (n=30)	DA (n=59)	p
Age mean (SD), years	60.0 (8.0)	65.5 (7.4)	<0.01
Gender male, %	76.7	62.7	0.24
PD vintage mean (SD), years	2.4 (1.9)	2.9 (2.3)	0.30
Hb mean (SD), g/dL	10.5 (0.9)	10.5 (1.0)	0.75
Serum Albumin mean (SD), g/dL	3.6 (0.4)	3.4 (0.4)	<0.01
Oral Iron Preparation, %	20.0	20.3	1.0
Diuretics, %	96.7	91.1	0.66

Differences in %Δferritin by ESA use (CERA vs. DA)

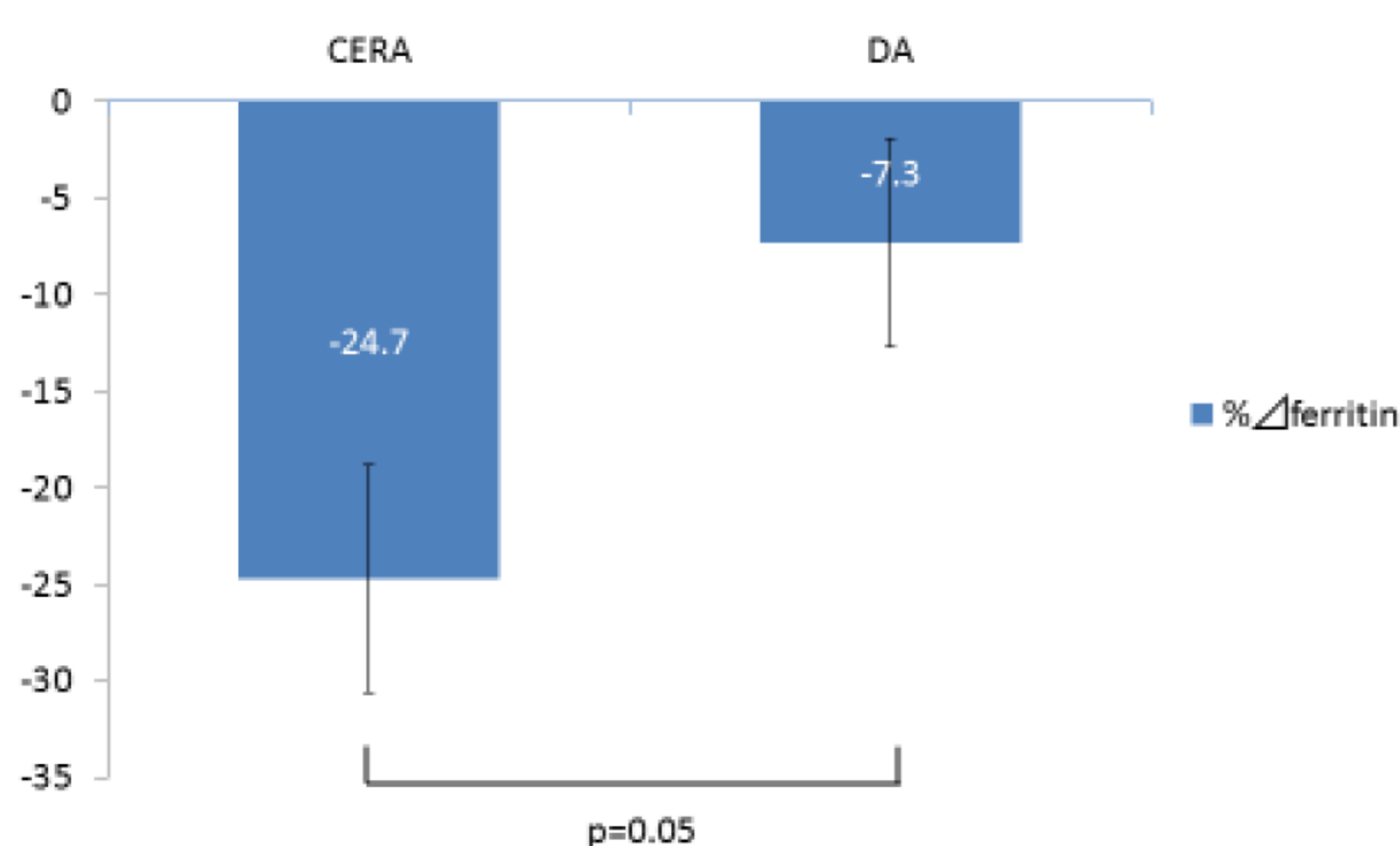
	Difference	95%CI	P
Crude	-17.4	-34.7 to -0.1	0.05
Model 1	-20.1	-38.4 to -1.9	0.03
Model 2	-21.3	-39.7 to -2.9	0.02
Model 3	-22.0	-41.1 to -2.9	0.02

Model 1: adjusted for age, gender, PD vintage

Model 2: adjusted for covariates of model 1 plus Hb, and serum albumin

Model 3: adjusted for covariates of model 2 plus oral iron preparation, and diuretics

%Δferritin by ESA use (CERA vs. DA)



- 89 consecutive cases were receiving CERA (n=30) or DA (n=59).
- The significant difference was observed in the mean change rate of serum ferritin (% delta-ferritin) by ESA use (CERA vs. DA)
- This difference was maintained significantly after adjusting for potential confounders (-22.0, 95% CI -41.0 to -2.9, p=0.02).

CONCLUSIONS

These results suggest that CERA may have advantages in utilization of storage iron as compared to DA among renal anaemia patients on PD without absolute iron deficiency.

