

Introduction

- Correction of anemia in hemodialysis is associated with improved quality of life, but does also entail major risks.
- Hemoglobin target levels can be achieved through more frequent intravenous (i.v.) iron use with less erythropoiesis-stimulating agent (ESA) or with less iron dosing but higher ESA.
- ESA therapy to correct anemia may result in a number of adverse clinical outcomes, most notably venous thromboembolic disease and vascular access thrombosis.
- The evidence base evaluating outcomes related to the use of i.v. iron is sparse and the effect on hard clinical outcomes, including death and major health events is uncertain.
- However, observational data suggest that i.v. iron may exacerbate oxidative stress, potentiate atherogenesis and cardiovascular toxicity and increase the propensity to infections.

Objectives

- We aimed to study the achievement of KDIGO anemia treatment targets in DaVita dialysis centers in Poland and Portugal.
- We studied differences in treatment practices in terms of the use of ESA and iron and analyzed laboratory values related to anemia.
- We also analyzed the consequences in terms of hospitalization as well as annual gross and cause specific mortality.

Methods

- We included 1,247 patients on maintenance hemodialysis from 5 DaVita centers in Portugal (n=730) and 8 DaVita centers in Poland (n= 517) in an analysis of the achievement of KDIGO renal anemia targets and focused on treatment strategies, which by tradition differ significantly in the two countries.

Results

- In dialysis centers in Poland the use and dose of i.v. iron is 35% higher than in Portugal (p<0.001)
- Gross annual mortality was 13.3% in Portugal and 16.0% in Poland (not significant, Chi²) with no significant differences between centers within countries. Cause-specific mortality (cardio-, cerebrovascular, infection, malignancy, other) was similar between countries.
- No differences in hospitalizations were observed.



	Hb	TSAT	Ferritin	Alb	Ca	P	iPTH	CVC	AVF
Mean	g/dL	%	ng/mL	g/L	mg/dL	mg/dL	pg/mL	%	%
Poland	11	35	757	41	8.7	4.7	565	19	76
Portugal	11	29	498	40	8.9	4.1	561	15	77
P	NS	***	***	NS	***	***	NS	***	NS

	Age	Vintage	BMI	Kt/V	TT
Mean	years	months	kg/m ²		min
Poland	67	53	27	1.6	737
Portugal	69	66	25	2.0	724
P	**	***	***	***	***

Charlson comorbidity index was significantly higher in patients in Portugal compared to patients in Poland (p<0.001)

Comparisons were made using t-test:
* indicates p≤0.05; ** indicates p≤0.01; *** indicates p≤0.001

List of abbreviations: Alb, albumin; AVF, arteriovenous fistula; BMI, body mass index; Ca, calcium; CVC, central venous catheter; ESA, erythropoiesis-stimulating agent; iPTH, intact parathyroid hormone; i.v., intravenous; NS, not significant; Phos, phosphorus; TSAT, saturated transferrin; TT, treatment time.

Summary and Conclusions

- The KDIGO hemodialysis anemia target was achieved in patients treated in dialysis centers in both Poland and Portugal.
- The two countries used different treatment strategies in terms of ESA use and doses of i.v. iron.
- The dialysis centers in Poland used significantly higher doses of iron and significantly lower doses of ESA per week to reach treatment targets, compared to clinics in Portugal.
- The proportion of patients with high ferritin (>800 ng/mL) and TSAT >20% and >50% was significantly higher in patients treated at facilities in Poland compared to those in Portugal.
- These differences in treatment strategies in terms of ESA use and doses of i.v. iron to correct renal anemia and to maintain the KDIGO recommended Hb targets did *not* translate into significant differences in hospitalizations and mortality.

References

KDIGO Guidelines: <http://kdigo.org/home/guidelines/anemia-in-ckd/>

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