



An International Multicenter Analysis of Incident Patients on Hemodialysis - Practice Patterns, Vascular Access, Demographics and Laboratory Profiles

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Introduction

- Starting renal replacement therapy is a life changing event which greatly impacts survival. An optimal transition to hemodialysis generally requires early referral to a nephrologist, timely placement of a vascular access, patient education, and close follow-up to manage progression of renal failure. There is still debate on the optimal timing to start dialysis.
- Hospitalization and mortality rates are particularly high in the first few months following initiation of hemodialysis.
- The risk of mortality is associated with age, ethnicity and characteristics of predialysis care including delayed referral to nephrologists and specialized nurses, type of vascular access used for dialysis, and failure to attain guideline-based clinical targets and recommendations.

Objective

The aim of this study was to analyze demographics, clinical practice patterns, use of vascular access, and laboratory profiles in a large international cohort of incident hemodialysis patients from Poland, Portugal and Saudi Arabia and to compare the results with prevalent patients from the same dialysis facilities.

Methods

- We analyzed patient demographics, practice patterns and laboratory data (February 2017) in a total of 2,592 patients (median age 62 years, 46% females) on hemodialysis from a total of 25 dialysis centers in Poland (8 centers, 529 patients), Portugal (5 centers, 757 patients) and Saudi Arabia (12 centers, 1,306 patients), all of which were operated by the same large dialysis organization.
- We considered the 10th percentile of time on hemodialysis (4.7 months) and compared demographics, practices, and laboratory data between incident (<4.7 months on hemodialysis, median 2 months) with prevalent patients (>4.7, median 44 months on hemodialysis).
- Statistical analyses were performed using Students t-tests and Chi square tests.

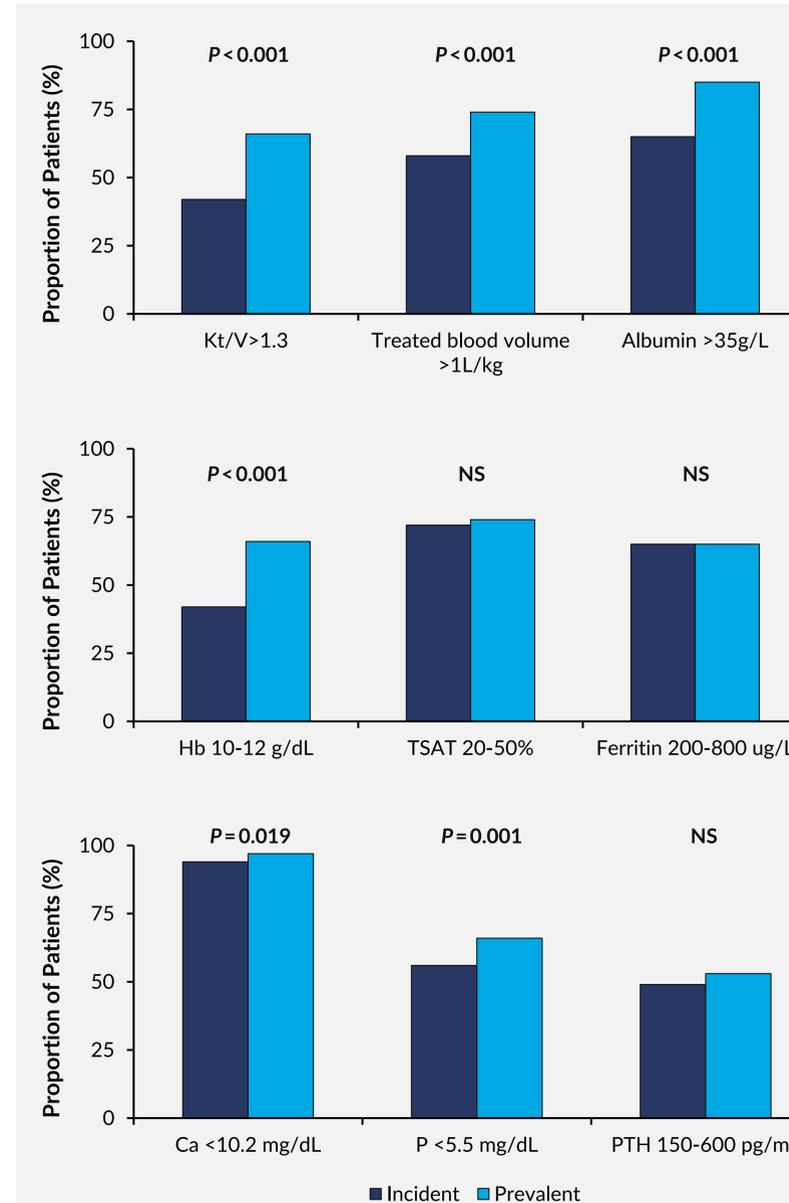
Results

Characteristics of Incident and Prevalent Dialysis Patients

	Incident N=259	Prevalent N=2333	P-Value
Vintage, months, median	2	44	<0.001
Age, years, median	57	62	<0.001
Sex, female, %	38	47	0.005
CVC, %	64	24	<0.001
BMI < 20 kg/m ² , %	22	13	<0.001
Albumin, g/L, median	37	39	<0.001
CCI, median	0	2	<0.001
Diabetes primary diagnosis, %	32	32	NS
Malignancy, %	2	7	0.01
HDF, %	20	25	NS
spKt/V, median	1.53	1.71	NS
Treated blood volume > 1 L/kg, %	58	74	<0.001
UF volume, L, median	2.2	2.4	NS
IDWG, kg, median	2.4	2.3	NS
Hemoglobin, g/dL, median	10.8	11.1	<0.001
ESA dose, U/week, median	12,000	6000	NS
Ferritin, µg/L, median	343	597	<0.001
TSAT, %, median	28	29	<0.001
Calcium, mg/dL, median	8.6	8.8	0.027
Phosphorus, mg/dL, median	5.3	4.8	<0.001
PTH, pg/mL, median	412	465	NS

Abbreviations: CCI, Charlson Comorbidity Index; CVC, central venous catheter; ESA, erythropoiesis stimulating agent; IDWG, interdialytic weight gain; NS, not significant; PTH, parathyroid hormone; TSAT, transferrin saturation; UF, ultrafiltration

Proportion of Incident and Prevalent Patients within Treatment Targets



Abbreviations: BMI, body mass index; Hb, hemoglobin; PTH, parathyroid hormone; TSAT, transferrin saturation

- Incident patients (n = 259) were significantly younger (P < 0.001) than prevalent patients (n = 2333) and had lower Charlson comorbidity index (P < 0.001) and lower BMI (24 vs 25 kg/m², P < 0.05).
- Incident patients were more often treated with a central dialysis catheter (P < 0.001).
- There were significant differences in the achievement of international treatment targets for renal anemia, nutrition and mineral bone disease variables between incident and prevalent patients (Table and Figures).
- The proportion of patients within treatment targets for Kt/V (> 1.3), treated blood volume (> 1 L/kg bw), albumin (> 35 g/L), hemoglobin (10-12 g/dL), and phosphate (< 5.5 mg/dL), and were all significantly lower in incident patients compared to prevalent patients (P < 0.001 for all comparisons).

Conclusions

- This large international multicenter analysis focusing on incident hemodialysis patients indicates that there is opportunity to improve predialysis management especially in terms of earlier placement of a permanent vascular access prior to start of hemodialysis.
- Since mortality is high after initiation of dialysis such efforts may contribute to improved treatment results.

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