M O N D O: MONitoring Dialysis Outcomes

Hospitalizations during the first year on hemodialysis are associated with early predictors

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Background

Mortality and morbidity during first 90 days on HD are indicators of pre-dialysis care and patient status at HD initiation.

In this work we explore the association between early predictors, i.e. factors captured in the first 30 days on HD, and hospitalization in the first year on HD in a large international sample of incident HD patients.

Methods

The MONitoring Dialysis Outcomes [MONDO] initiative is an international consortium of hemodialysis (HD) databases [Usvyat, Blood Purif 2013; von Gersdorff, Blood Purif 2014]. Databases from Renal Research Institute in the US and Fresenius Medical Care Europe [17 countries] were queried to identify all incident patients with in-center treatments [01/2006-12/2012] who survived at least 30 days on HD. Clinical and laboratory parameters were computed over the first 30 days (baseline), death and hospitalizations were observed in days 31 to 365 (follow up period). Poisson regression models were constructed to explore associations between baseline parameters and hospitalizations in the follow up period.

Results

We studied 31,870 patients [RRI 8,330; FMC Europe 23,540]: 59% male, 88% white, mean age 64.0 years and 57% started HD using a temporary vascular access. Factors <u>directly associated</u> to hospitalization during first year were white race, catheter as vascular access, diabetes, preexisting cancer, hospitalization in first 30 days, preSBP < 100 mmHg, neutrophil to lymphocyte ratio [NLR] and hemoglogin [g/dL].

Factors <u>inversely associated</u> to hospitalization during first year were gender male, body mass index [BMI, kg/m^2], preSBP > 140 mmHg, albumin [g/dL], serum Na [mmol/L] and urea reduction ratio [URR%]. Hazard ratio and 95% CI are summarized below:

		RR	CI
Increase risk	PreSBP below 100 mmHg (yes)	0.503	0.340 / 0.666
	Hospitalization during first 30 days (yes)	0.443	0.406 / 0.480
	Use of catheter (yes)	0.388	0.344 / 0.432
	Preexisting cancer (yes)	0.171	0.077 / 0.266
	Diabetes (yes)	0.1	0.057 / 0.143
	White race (yes)	0.049	0,001 / 0.098
	Hemoglobin [g/dL]	0.016	0.001 / 0.032
	Neutrophil to lymphocyte ratio [NLR]	0.007	0.004 / 0.010
Decrease risk	Urea Reduction Ratio [URR%]	-0.002	-0.005 / -0.0001
	Body Mass Index [BMI, kg/m2]	-0.006	-0.009 / -0.002
	Serum Na [mmol/L]	-0.011	-0.016 / -0.006
	PreSBP above 140 mmHg (yes)	-0.112	-0.153 / -0.070
	Gender male (yes)	-0.148	-0.192 / -0.105
	Albumin [g/dL]	-0.342	-0.381 / -0.304
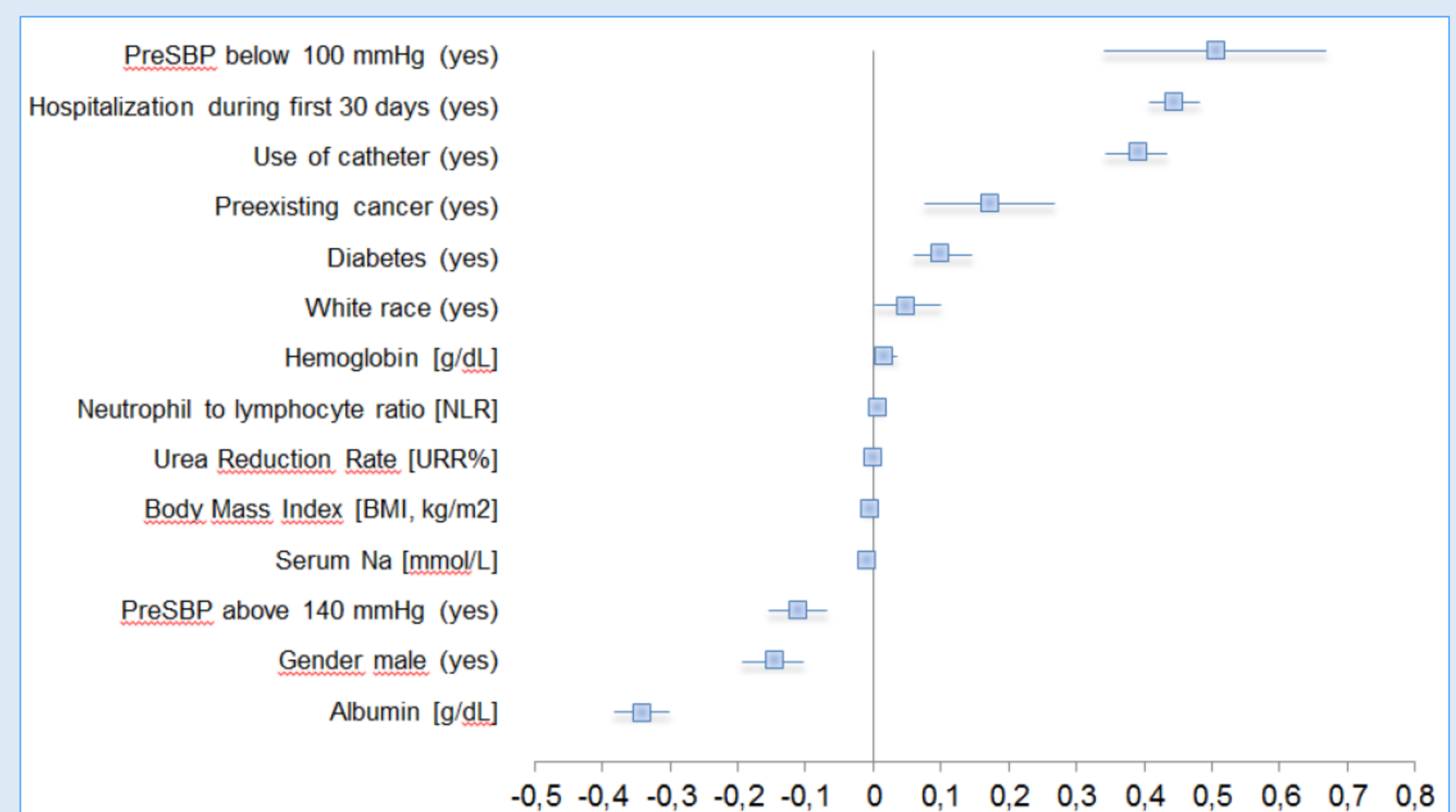
Conclusion

Several modifiable factors in the first 30 days of dialysis predicted subsequent hospitalizations during the first year of dialysis.

Efforts towards <u>improved pre-dialysis care</u> and <u>planned dialysis start</u> should be made to achieve better outcomes in this population.