M O N D O: MONitoring Dialysis Outcomes

Survival during the first year on hemodialysis (HD) is associated with early predictors

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Background

Mortality during first 90 days on HD has been identified as an indicator of predialysis care and patient status at HD initiation. We explored the association between early predictors i.e. factors captured in the first 30 days on HD and survival during first year 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), deaths were observed in days 31 to 365 (follow up period). Cox regression model was employed to analyze associations of baseline parameters and mortality 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% starting HD using a non-definitive vascular access.

Factors underlined associated with increased mortality risk during first year were (see table 1) age, use of catheter, preexisting cancer, hospitalization during first 30 days, preSBP below 100 mmHg, interdialytic weight gain [IDWG%] and neutrophil to lymphocyte ratio [NLR], while preSBP above 140 mmHg, high albumin and serum Na were associated with a protective effect.

Gender, race, diabetic status and hemoglobin level in first 30 days were not associated with first year mortality.

Hazard ratio and CI are summarized below.

	RR	CI
Increase risk		
PreSBP below 100 mmHg (yes)	2.59	1.95 - 3.44
Use of catheter (yes)	1.8	1.5 - 2.04
Hospitalization during first 30 days (yes)	1.55	1.39 - 1.72
Preexisting cancer (yes)	1.33	1.036 - 1.708
Interdialytic weight gain [IDWG% per unit]	1.08	1.034 - 1.128
Age [years, per unit]	1.03	1.029 - 1.038
Neutrophil to lymphocyte ratio [NLR per unit]	1.015	1.009 - 1.021
Decrease risk		
Serum Na [mmol/L per unit]	0.97	0.956 - 0.984
PreSBP above 140 mmHg (yes)	0.68	0.59 - 0.77
Albumin [g/dL per unit]	0.45	0.41 - 0.50
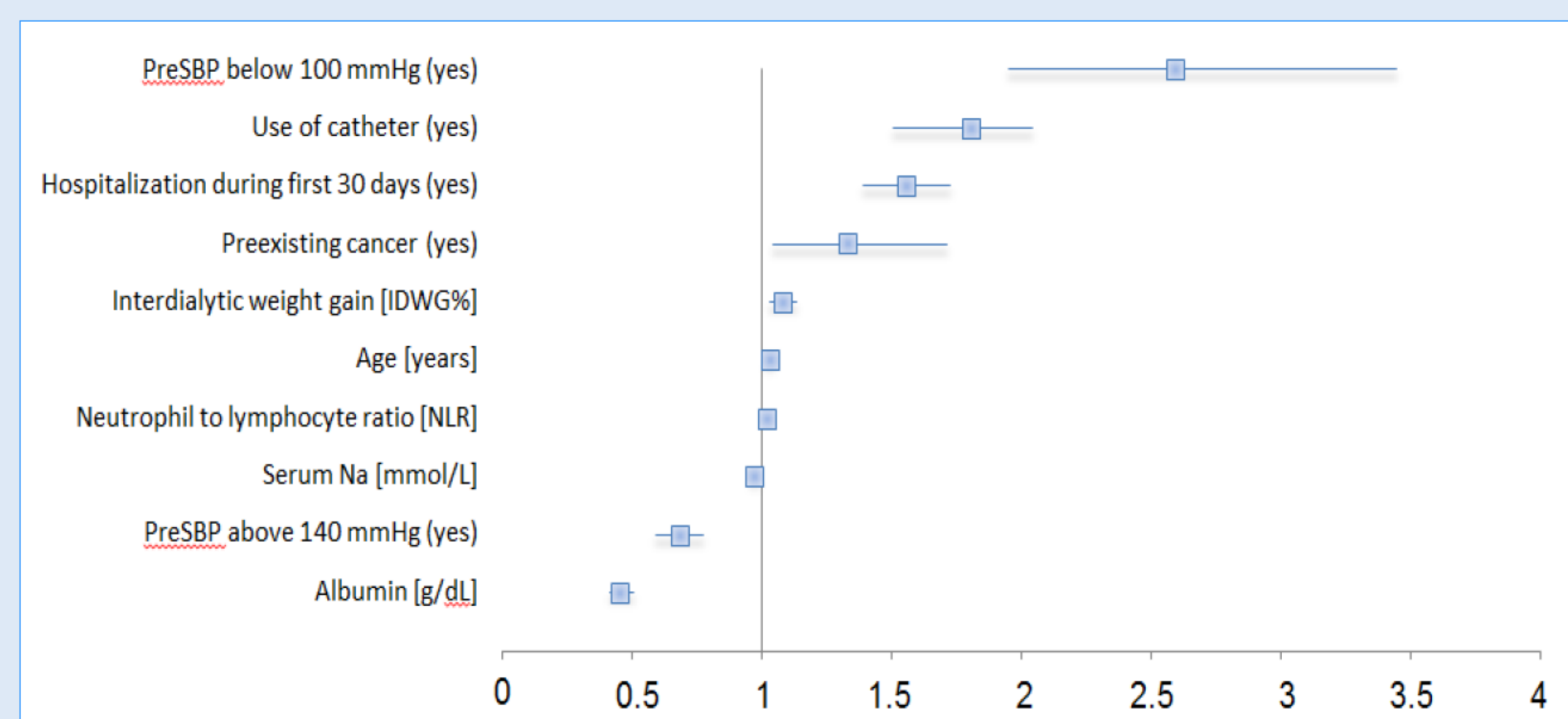
Conclusion

Several modifiable factors within first 30 days of dialysis showed a marked association with patient mortality during first year of dialysis. Efforts towards improved pre-dialysis care and planned dialysis start using fistulas as vascular access should be made to achieve better outcomes in this population.

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