**CLINICAL AND BIOLOGICAL VARIABLES ASSOCIATED WITH MORTALITY IN HEMODIALYSIS PATIENTS**

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**Introduction**

Global and cardiovascular mortality remains high in hemodialysis patients. Different hypotheses have been proposed to explain this over-mortality: high inflammation, vascular calcifications, high oxidative stress. We tested here potential clinical and biological variables which are associated with a higher mortality risk.

**Methods**

Prevalent hemodialysis patients from three centers in Belgium (Liège area) were recruited for this study. Following clinical data were available: age, gender, BMI, dialysis vintage, status of hypertension and diabetes, smoking status, and history of cardiovascular (CV) disease. Among biological variables, we tested classical variables in serum like calcium, phosphorus, parathormone, 25-OH vitamin D, albumin and C-reactive protein (CRP). Several new biomarkers were also tested: bone-specific alkaline phosphatase, C-terminal telopeptide of collagen type I (CTX), intact amino-terminal propeptide of type I procollagen, tartrate-resistant acid phosphatase 5b, osteoprotegerin, troponin T, homocystein, interleukin-6, TNFα, FGF-23, fetuin and desphospho-uncarboxylated matrix Gla-protein. Time of follow-up is expressed in months. Cox proportional hazards regression and logistic regression were performed to evaluate the possible effect of covariates, like clinical variables and biomarkers.

**Results**

The sample included 165 patients with the following clinical characteristics: median age was 74 y [63;80], mean BMI was 26±7 kg/m², median dialysis vintage 22 months [11;43], 44% were diabetic, 87% were hypertensive, 21% were smokers and 65% had history of CV disease. Mean follow up time was 22.1±11.3 months. A total of 74/165 (44.8%) died with a mean follow up time of 13.1±9.1 months (median value was 11.3 [5.4;20.8]). Hazard ratios were calculated using Cox proportional hazards modeling with the following statistically significant covariates in the final model (HR and 95% HR confidence limits): history of CV disease (HR: 0.544 [0.31-0.953] for no history), age (HR: 1.054 [1.09-1.079]), phosphorus (HR: 1.223 [1.029-1.454]), troponin T (HR: 253.283 [14.831-4325]) and CTX (HR: 1 [0.999-1]). When considering logistic regression to estimate mortality probability, age phosphorus, troponin T and CTX were still in the final model of prediction, but not history of CV disease. In this last analysis, concentration of 25 OH-vitamin D was also significant.

**Conclusion**

In this longitudinal study, we confirmed that age and phosphorus levels are clearly associated with a higher risk of mortality. Among the “non-classical” variables, concentration of troponin T is the most interesting one to assess the risk of mortality in our hemodialysis populations.