

FP601

DECREASED OSTEOCALCIN LEVELS AND INCREASED MORTALITY IN HEMODIALYSIS PATIENTS WITH DIABETES MELLITUS

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INTRODUCTION AND AIMS: Bone Gla protein (BGP or osteocalcin) is a vitamin K-dependent protein, under the control of vitamin D, involved in the regulation of bone mineralization. The aim of this study was to evaluate BGP levels in hemodialysis (HD) patients with Diabetes Mellitus (DM).

METHODS: Secondary analysis of the VIKI study, involving 387 hemodialysis patients from 18 dialysis centers in Italy. Potential associations of diabetes mellitus, BGP levels, fractures, vascular calcifications were evaluated. Time-to-event analysis for all-cause mortality in patients with diabetes mellitus was performed by considering the Kaplan-Meier method.

RESULTS: Patients with diabetes mellitus (88, 22%) had significant lower levels of total BGP ([139.00 (62.40, 220.5)] vs. [202.50 (109.25, 362.30)] mcg/L, $p < 0.001$), undercarboxylated (uc) BGP [9.24 (2.99, 15.54)] vs. [11.32 (6.15, 18.15)] mcg/L, $p = 0.033$) and 25(OH)D ([23.4 (16.5, 34.7)] vs. [30.2 (20.18, 46.78)] ng/ml, $p < 0.001$). Lower total BGP levels were associated with aortic calcification ($p < 0.001$), iliac calcification ($p = 0.042$) and vertebral fractures ($p = 0.023$). The regression model showed that diabetic patients had a statistically significant reduction of 19% of geometric mean both of total BGP (parameter estimate = -0.21092; $p = 0.0085$; $R^2 = 0.53$) and of 25.6% of geometric mean of ucBGP (parameter estimate = -0.0341; $p = 0.0085$; $R^2 = 0.17$). 77 patients died during a 2.7 ± 0.5 year follow-up. In univariate Cox regression analysis, patients with diabetes mellitus had a higher risk of all-cause mortality (HR: 1.826, 95% CI: 1.127-2.958, $p = 0.014$).

CONCLUSIONS: In HD patients, diabetes mellitus is associated with decreased BGP levels and increased mortality, suggesting a clinically significant reduced protection by BGP of bone and vascular health