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Theme : Rehabilitation, Quality of Life and Survival

THE OSTEOCLAST INHIBITOR OSTEOPROTEGERIN IS AN INDEPENDENT PREDICTOR OF SURVIVAL IN END-STAGE RENAL DISEASE PATIENTS STARTING PERITONEAL DIALYSIS

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Objectives; Bone diseases are very common in end-stage renal disease (ESRD), which is also characterized by an increased incidence of chronic inflammation and cardiovascular disease (CVD). Many of the cytokines and growth factors implicated in the inflammatory processes of ESRD have also recently been demonstrated to impact osteoclast differentiation and function either directly by modulating expression of the key osteoclastogenic factor, receptor activator of nuclear factor (NF) kappaB ligand (RANKL) and/or its inhibitor osteoprotegerin (OPG). The objective of this study was thus to investigate the relationship between OPG and various clinical and laboratory parameters in ESRD patients starting peritoneal dialysis (PD). **Methods;** We prospectively studied one hundred and thirty-six (79 males; 58%) ESRD patients starting PD (GFR 7 ± 1 ml/min), with the mean age 53 ± 1 (range 23-70) years. Biochemical, nutritional and inflammatory markers as well as subjective global assessment (SGA) of nutritional status were assessed close to start of peritoneal dialysis. The patients were then followed prospectively for 49 ± 3 (range 2-126) months. OPG, IL-6, Fetuin-A, VCAM-1, and ICAM-1 were analyzed using commercially available enzyme-linked immunosorbent assay (ELISA) kits. **Results;** OPG levels were associated with age ($\rho=0.32$; $p<0.0001$), HbA1c ($\rho=0.37$; $p<0.0001$), Albumin ($\rho=-0.39$; $p<0.0005$), IL-6 ($\rho=0.23$; $p<0.01$), VCAM-1 ($\rho=0.18$, $p<0.05$), ICAM-1 ($\rho=0.20$, $p<0.05$) and SGA ($\text{Chi}^2=11.9$; $p<0.001$). Furthermore, both unadjusted all-cause ($\text{Chi}^2=8.97$; $p<0.005$) and cardiovascular ($\text{Chi}^2=7.75$; $p<0.01$) mortality as assessed by Kaplan Meier was associated with OPG levels. This association remained after adjustment for age, gender, diabetes mellitus, nutritional status, inflammatory markers, and signs of CVD at baseline, in both all-cause ($\text{Chi}^2=3.64$; $p=0.056$) and cardiovascular mortality ($\text{Chi}^2=4.17$; $p=0.041$). **Conclusions;** Osteoprotegerin is associated with malnutrition, inflammation, and CVD, and moreover, an independent predictor of both all-cause and cardiovascular mortality in ESRD patients starting peritoneal dialysis, presumably through its role in pathways related to soft tissue calcification.