LEAN BODY MASS AND OSTEOPROTEGERIN CORRELATE WITH BONE MINERAL DENSITY IN HEMODIALYSIS PATIENTS

Denise Mafra[1], Sandra M. Marinho[1], Vivian Wahrlich[1], Cristiane Moraes[1], José C. Carraro Eduardo[1] Denis Fouque[2]

[1]Federal University Fluminense, Rio de Janeiro, Brazil,
[2]Université Claude Bernard, Centre Hospitalier LyonSud,Hospices Civils de Lyon, Pierre Bénite, France.

INTRODUCTION

Mineral and bone disorders in chronic kidney disease (CKD) patients are part of the complex metabolic disorders that affects patients in all disease stages, and contributes to morbidity and poor quality of life of these patients. Thus, understanding the complex biology and evaluating the issues related to this framework is very important. Recent studies have shown that excess of body weight is related to high bone mass and the hypothesis is based on the mechanical load because they accrue more bone as a compensatory mechanism to better support their body mass. However, the protective effect of obesity on bone mineral density (BMD) in CKD patients is still unclear. Studies have revealed complex interactions between bone and fat, however there are few studies about this crosstalk in patients with chronic kidney disease (CKD).

OBJECTIVES

This study investigated possible relationships between bone mineral density (BMD) and body composition in hemodialysis (HD) patients.

METHODS

Forty-four HD pts were enrolled in a cross sectional study (48.3±13.2 years, 54% men, BMI 25.4±4.5.9 kg/m^2, dialysis vintage 53.7±39.4 months). Body composition and BMD were assessed by DEXA. Osteoprotegerin (OPG), leptin, and parathormone plasma levels were analyzed using Multiplex kits (R&D System Inc®. Minneapolis, MN, USA).

RESULTS

Osteopenia was reported in 100% women and 72% men and 79.5% pts had elevated fat mass. Total BMD was not correlated with fat mass, but was positively correlated with lean mass ($r=0.56$, $p<0.001$). Among men, an inverse relationship was found between OPG and total BMD ($r= 0.44$, $p<0.05$) whereas leptin was not correlated with bone markers.

CONCLUSION

In conclusion, male HD patients present a bone loss associated with increased OPG. Interestingly, poor lean mass may be a marker for low bone mass in HD patients.

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