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Title: Inflammatory mediators associated with bone metabolism in patients awaiting lung transplantation

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Body: Aime: to evaluate the association between systemic inflammation, markers for bone turnover and bone mineral density (BMD) in 105 candidates for lung transplantation. Methods: BMD, bone biomarkers, inflammatory mediators were determined in 105 patients with end-stage of chronic respiratory failure and 85 age and sex matched controls. Results: We indentified a osteopenic syndrome in 82/105 patients, 10/85 controls were osteopenia. Procollagen type 1 amino-terminal propeptide (P1NP), markers of bone formation, was higher in lung diseases and osteocalcin was similar between patients and controls. Type 1 collagen C-telopeptide (CTx), a marker of bone resorption, was higher in candidates for lung transplantation and was inversely related to femur neck (FN) BMD and was a direct relationship with P1NP (r=0,72, p<0,001). TNF-a and its receptors level, interleukin-6, receptor of nuclear factor kB (RANK) were higher, osteoprotegerin level was low in lung pathology. Osteoprotegerin positively correlated with parameters of bone formation, BMD FN, BMD LS and was negative association with RANK, TNF-a and its receptors. TNF-a and interleukin-4 were positively associated with CTx. Interleukin-2 was directly associated with P1NP (r=0,38, p<0,05). There was no difference in IL-6 between these patients with and without osteoporosis. Vascular endothelial growth factor was lower in patients with emphysema and correlated with BMD (r=0,66, p=0,002) only in with end-stage of emphysema. Conclusions: Patients with end-stage lung diseases had a greater prevalence of osteopenic syndrome. Results shows possibly role of systemic inflammatory in the increasing of bone loss at the terminal stage of lung disease.