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Title: The relationship between leptin and proinflammatory cytokines with bone mineral density in patients with sarcoidosis (pts)

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Body: Background: Sarcoidosis is a chronic inflammatory disease. Osteoporosis is a multifactor disorder of reduced bone mass. Body weight is commonly considered a significant predictor of bone mineral density (BMD) but obesity is also associated with chronic inflammation. Cytokines like TNF- α , IL-1 and IL-6 induce bone resorption and bone loss. Aim: The aim of the study was to investigate whether there is a relationship between leptin or cytokines and BMD in pts. Methods: 85 pts, none was treated with steroids, 46M and 39F, age 41 \pm 9y were enrolled. We evaluated BMI, serum leptin, TNF- α , IL-1 and IL-6, osteocalcin, alkaline phosphate and others. BMD was measured (DXA). Results: Pts with low BMI had decreased lumbar spine BMD(Tscore<-1). The differences were statistically significant for group with normal BMI(18,5<BMI<25), compared to overweights (25<BMI<30), p=0,045 and to obese (BMI>30), p=0,00054. There were no such results for femoral neck BMD. The highest values of leptin were found in pts with obesity. The differences between pts with normal BMI compared to those with obesity was statistically significant (p=0,026). There was a weak correlation between leptin and BMI, R=0,25, leptin and IL-1, R=0,27, leptin and phosphate in urine, collected over 24h, R=0,31. No correlation was found between leptin and TNF- α or IL6. Conclusions: In our group BMD was related to BMI but not to leptin levels nor other cytokines. Obesity, through its mechanical loading effect have a protective influence on bone tissue metabolism. Leptin, cytokines have a role in bone growth, development and loss. Further research is required to ascertain the importance of adipokines or cytokines for BMD.