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Background: Osteoporosis is a common comorbidity in patients with systemic lupus erythematosus (SLE). Available evidence showed that autoimmunity and associated inflammation play main effect in the pathogenesis of negative skeletal effects in SLE patients. However, the potential contribution of disease-associated factors to bone status in SLE is not well known since the reported risk factors from different studies differ greatly.

Objectives: The aim of this study was to examine frequency of reduced bone mass in SLE women, and determine their potential associations with disease activity, damage accrual and SLE-related clinical markers.

Methods: A cross-sectional study including a total 121 Caucasian pre-menopausal and postmenopausal women was conducted (mean age 49.29±12.43 years).

The SLE Disease Activity Index (SLEDAI-2K) and the SDI Damage Index were used to assess disease activity and disease-related damage, respectively. Bone mineral density (BMD) of the left femoral neck and lumbar spine (L2–L4) were measured by dual-energy X-ray absorptiometry (Hologic DQR 400).

Results: Ten patients (8.3%) had osteoporosis, 63 (52.1%) patients had osteopenia and 6.8% of women had history of previous fracture. Patients with low bone mass had a significantly higher mean ESSDAI (136.1±26 versus 70.7±10 p=0.003), T-score at lumbar spine was inversely correlated with SDI score (r=-0.222, p=0.014) and complement C3 level (r=-0.206, p=0.024). Results of bivariate correlations showed that T-score at lumbar spine was inversely correlated with SDI score (r=-0.222, p=0.014) and complement C3 level (r=-0.206, p=0.024).

SDI scores were significantly different between patients with osteoporosis, osteopenia and normal BMD after adjusting for age, menstrual status, BMI, time since diagnosis and corticoid use (p≤0.004).

Conclusion: There is a high prevalence of low BMD in Caucasian women with SLE and this status of osteoporosis/osteopenia was associated with higher damage accrual scores, supporting that disease damage may itself be a major contributor to the low BMD. SLE women with organ damage require regular bone status monitoring to prevent further musculoskeletal damage. Since diminished BMD is a main comorbidity it is therefore essential to study, monitor and prevent osteoporosis in SLE women to avoid fractures leading to reduced quality of life.

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