

## Bone Involvement in Young Lupus Patients

Juliane A Paupitz, Rosa M R Pereira\*

*Rheumatology Division, Hospital das Clinicas HCFMUSP, Faculdade de Medicina da Universidade de São Paulo, São Paulo, Brazil*  
ABOUT THE STUDY

Juvenile-onset systemic lupus erythematosus patients (JoSLE) are prone to have bone impairment [1]. This deterioration has already been characterized by reduction in areal bone mineral density (aBMD) which is evaluated with dual X-ray absorptiometry (DXA), which is the most common instrument used in daily clinical practice [2], and, also by high resolution peripheral quantitative computed tomography (HR-pQCT) [3]. All this commitment is particularly important in children and young adults because reduction in bone mass can lead to a consequent suboptimal accrual of peak bone mass and, consequently a higher frequency of fractures in childhood and in adult life [4].

Many risk factors which have been suggested to be linked to bone impairment such as sex, race, inflammatory cytokines, vitamin D deficiency, renal failure and glucocorticoid use [5].

In fact, the recent published article titled "Risk factors for bone loss in juvenile-onset systemic lupus erythematosus: a prospective study" was the first longitudinal study which was evaluated prospectively in a 3 to 5-year follow-up which of these risk factors were related to bone loss in a group of young lupus patients [6].

Surprisingly, we identified that the alcohol consumption was related to bone mass even in young patients with Systemic Lupus Erythematosus. Moreover, inadequate calcium intake was also associated to bone loss suggesting the importance to review lifestyle habits in our routine consultation of adolescent and young adults with SLE. Alcohol consumption is a known risk factor for fractures in post-menopausal and elderly individuals and our data showed its importance in young subjects. The ethanol action in bone is multifactorial, notably, it inhibits the growth of mesenchymal stem cells in the bone marrow and the transformation into osteoblasts [7].

Despite the importance of an adequate calcium intake has been demonstrated in several studies before and that is critical for the achievement of an adequate peak of bone mass in young persons, our recent article reinforces that calcium intake, either by diet or supplementation, is fundamental to prevent bone loss in JoSLE [8].

Bone deterioration in autoimmune diseases have been classically linked to the immunosuppressive treatment, particularly glucocorticoids (GC) use and its long-term exposure. Although

we did not find a statistical significance regarding this treatment in these young patients (average disease duration: 5y and maximum GC dose: 17g). These differences may be related to population characteristics, such as patient age, disease features, and treatment strategy. And, also raises the question that other disease related factors may play a role in bone health.

Regarding this point, we observed a higher frequency of renal activity in JoSLE. Other studies also demonstrated a relationship between SLE nephritis and loss bone mass, apparently without influence of GC use [9]. In this context is important to evaluate bone impairment in patients with lupus nephritis.

About bone turnover markers evaluation, low levels of P1NP (procollagen type1 amino-terminal propeptide) may predict bone impairment in JoSLE patients. A previous study of our group had already demonstrated a similar data with premenopausal women [10].

All this new data can help us to provide better care and outcome in relation to bone involvement, which is important for improving quality of life and decrease osteoporosis/fractures in lupus patients.

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**Correspondence to:** Rosa M R Pereira, Rheumatology Division, Hospital das Clinicas HCFMUSP, Faculdade de Medicina da Universidade de São Paulo, São Paulo, Brazil; Tel: +55 11 3061-8594; E-mail: rosamariarp@yahoo.com

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