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The investigation of interleukin-23 receptor (IL23R) gene polymorphisms in systemic lupus erythematosus in a Korean population

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Background & Objective : Systemic lupus erythematosus (SLE) is a prototypic autoimmune disease that has a complex genetic trait and cytokines play an important and diverse role in the pathogenesis. It is known that IL-23 is important for the pathogenesis of autoimmune diseases such as experimental autoimmune encephalomyelitis, collagen-induced arthritis, and IBD. Recently, a Genome-wide association study identified a highly significant association between Crohn's disease and the IL23R gene. The aim of this study was to investigate the association between the interleukin-23 receptor (IL23R) gene polymorphisms and systemic lupus erythematosus (SLE) patients in a Korean population. **Methods :** We recruited 602 SLE patients and 991 healthy controls from the Hospital for Rheumatic Diseases, Hanyang University, Seoul, Korea. Eight SNPs (rs1004819, rs7517847, rs10489629, rs2201841, rs11209026, rs1343151, rs11209032, and rs1495965) were selected for genotyping among previously reported variants. Polymorphic sites were genotyped using amplifying primers and probes designed for TaqMan assay. The genotype distributions of IL23R polymorphisms and haplotypes were compared between the SLE patients and healthy controls with multiple logistic regression models. SLE patients were stratified according to their clinical characteristics based on ACR criteria, autoantibodies and SLICC/ACR damage index, and analyzed their association with each genetic variants. **Results :** There were no significant differences between SLE patients and healthy controls with any of the IL23R genetic variants in this study. Similarly, no statistically significant associations were observed between these genetic variants and stratified SLE patients based on the clinico-immunologic features. **Conclusions :** These results suggest that the polymorphisms located in IL23R gene have no important role in the susceptibility or severity of SLE in the Korean population.

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Risk factor for osteopenia in young patients with systemic lupus erythematosus

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Objective : To study the risk factors for osteopenia in young patients with systemic lupus erythematosus(SLE) and to determine whether osteoclastogenic cytokines, which are known to be elevated in SLE, could affect BMD in SLE. **Method :** Seventy six patients with SLE and 57 age and gender matched healthy controls were enrolled for this study (mean age; 40.0±5.6 for controls, 37.2±12.1 for SLE). Lumbar and femoral BMD was measured by dual X-ray absorptiometry. Clinical variables evaluated in SLE patients consisted of disease duration, serum complement, anti-dsDNA antibody titer, SLE disease activity index, mean and cumulative dose of steroid, medications including oral calcium, anticoagulant, hydroxychloroquine, azathioprine, cyclosporin, methotrexate and cyclophosphamide, concentrations of serum osteocalcin and urine deoxypyridinoline(DPD), and serum levels of FSH and LH. The levels of several osteoclastogenic cytokines, such as interleukin-6(IL-6), osteoprotegerin (OPG), and soluble receptor activator of NF-kB ligand(sRANKL) were simultaneously measured in the sera of both healthy controls and SLE patients. **Results :** BMD was decreased in patients with SLE compared to healthy controls(-0.54±1.56 vs -1.22±1.29 g/cm2 at lumbar spine, -0.45±1.10 vs -1.27±1.07 g/cm2 at femur, $p=0.05$ and $p<0.05$, respectively). Serum concentration of osteocalcin was also lower in patients with SLE than in healthy controls(6.45±0.52 vs 9.57±0.40 ng/ml, $p<0.05$), whereas urinary DPD level was higher in SLE patients(67.14±7.06 vs 50.05±4.07, $p<0.05$). When SLE patients were divided into two groups according to osteopenia, FSH and LH levels were greater in osteopenic SLE patients(n=24) than non-osteopenic patients(n=52)($p=0.03$ and $p=0.01$, respectively). The frequency of menopause also tended to be higher in osteopenic SLE($p=0.053$). **Conclusion :** Elevated FSH and LH levels were the single risk factor linked to osteopenia in SLE. Other factors, including disease activity and osteoclastogenic cytokine levels, did not affect BMD in young SLE. These observations indicate that ovarian dysfunction, which may be associated with SLE itself or cytotoxic agents, is the most important determinant in the progression of osteopenia in young SLE.