

## A CD40 Variant is Associated with Systemic Bone Loss Among Patients with Rheumatoid Arthritis

**Authors :** Rim Sghiri, Samia Al Shouli, Hana Benhassine, Nejla Elamri, Zahid Shakoor, Foued Slama, Adel Almogren, Hala Zeglouli, Elyes Bouajina, Ramzi Zemni

**Abstract :** Objectives: Little is known about genes predisposing to systemic bone loss (SBL) in rheumatoid arthritis (RA). Therefore, we examined the association between SBL and a variant of CD40 gene, which is known to play a critical role in both immune response and bone homeostasis among patients with RA. Methods: CD40 rs48104850 was genotyped in 176 adult RA patients. Bone mineral density (BMD) was measured using dual-energy X-ray absorptiometry (DXA). Results: Low BMD was observed in 116 (65.9%) patients. Among them, 60 (34.1%) had low femoral neck (FN) Z score, 72 (40.9%) had low total femur (TF) Z score, and 105 (59.6%) had low lumbar spine (LS) Z score. CD40 rs4810485 was found to be associated with reduced TF Z score with the CD40 rs4810485 T allele protecting against reduced TF Z score (OR = 0.40, 95% CI = 0.23-0.68, p = 0.0005). This association was confirmed in the multivariate logistic regression analysis (OR=0.31, 95% CI= 0.16-0.59, p=3.84 x 10<sup>-4</sup>). Moreover, median FN BMD was reduced among RA patients with CD40 rs4810485 GG genotype compared to RA patients harbouring CD40 rs4810485 TT and GT genotypes (0.788± 0.136 versus 0.826± 0.146g/cm<sup>2</sup>, p=0.001). Conclusion: This study, for the first time ever, demonstrated an association between a CD40 genetic variant and SBL among patients with RA.

**Keywords :** rheumatoid arthritis, CD40 gene, bone mineral density, systemic bone loss, rs48104850

**Conference Title :** ICI 2022 : International Conference on Immunology

**Conference Location :** London, United Kingdom

**Conference Dates :** September 22-23, 2022