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Association of EDARV370A with glycemic traits in Latinos residing in the Southwest

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Abstract

Ectodysplasin A Receptor (EDAR) V370A (rs3827760) has gained attention for its associations with breast density and metabolic syndrome (MetS) traits in Latino participants from the Arizona Insulin Resistance (AIR) registry and Sangre por Salud (SPS). In this study, we conducted a replication association analysis in participants from El Banco por Salud (El Banco). El Banco consisted of 1,030 self-reported Latinos, of which 69% were female, with an average age of 51.8±0.47 years and a body mass index (BMI) of 32.1±0.21 kg/m². We performed SNP genotyping of EDARV370A and analyzed its association with MetS traits using linear regression models. All analyses were adjusted for age, sex, and BMI. Genotype frequencies in El Banco (TT:344, TC:511, CC:175) were in accordance with Hardy Weinberg Equilibrium and had a minor allele frequency of 42%. Notably, we observed associations with glycemic traits, including hemoglobin A1c (HbA1c) and fasting plasma glucose, with p-values and genotype means of p=0.0088 (TT: 7.23±0.1, TC: 7.79± 0.1, CC: 7.69±0.3 %) and p=0.042 (TT: 139.5±4.0, TC: 148.5±3.3, CC: 151.8±5.6 mg/dl), respectively. We combined El Banco with our AIR (n=502) and SPS (n=993) data, resulting in a total sample size of 2,525. This larger dataset also confirmed an association with HbA1c (p=0.031). Our replication findings provide further evidence supporting the role of EDARV370A in MetS, particularly concerning glycemic traits. In conclusion, these results highlight the significance of focused research in elucidating the influence of this SNP on health outcomes, particularly among Latino populations.