Parent-of-origin effects for MSX1 in a Chilean population with nonsyndromic cleft lip/palate

Suazo, José

Santos, José Luis

Jara, Lilian

Blanco, Rafael

Based on association and sequencing studies, investigators have postulated muscle segment homeobox 1 (MSX1) as a strong candidate gene involved in the causation of nonsyndromic cleft lip with or without cleft palate (NSCLP). Parent-of-origin effects have been suggested for some NSCLP candidate genes but not for MSX1. The aims of the present study were to test for allele/haplotype associations applying the transmission disequilibrium test (TDT) and the transmission asymmetry test (TAT) to evaluate the possible parent-of-origin effects of MSX1 in Chilean patients with NSCLP. We analyzed five SNPs (rs6446693/c.-425G>T/c.-35G>A/rs3775261/rs12532) located from 6.3 kb upstream to 3? UTR in a sample of 150 unrelated NSCLP case-parent trios. Four haplotypes showed overtransmission from parents to affected progeny, but individual SNPs did not. Two haplotypes presented allele combination C-G-A-G (P=0.035) and two T-G-C-A (P=0.044) (SNP order rs6446693/c.-35G>A/rs3775261/ rs12532). The rs12532 A