**SWEET TASTE PERCEPTION AND OBESITY RISK IN SUBJECTS WITH METABOLIC SYNDROME. GENOME WIDE SCREENING FOR NEW GENES AND GENE-GENDER INTERACTIONS**

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**Background:**Taste perception has been associated with food consumption, obesity and cardiovascular risk, but results differ. The genes associated with taste perception, apart from bitterness, are not well known. Our aims were: 1) To analyze the association between sweet taste perception and anthropometric variables; and 2) To carry out a genome-wide association study (GWAs) on an elderly Mediterranean population to detect the main genes associated with sweet taste perception in the whole sample as well as to detect gene-gender interactions.

**Methods:**381 participants in the PREDIMED PLUS-Valencia study (elderly subjects with metabolic syndrome; 168 males and 213 females) were subjected to laboratory taste tests to identify their perception of sweetness. Various concentrations of sucrose were used and their perception noted on a rising scale (from 0 to 5). The highest concentration of sucrose (400 mM) was used for the GWAs. Genotyping was undertaken with the Human OmniExpress Illumina array. PLINK was used for association analyses.

**Results and conclusions:**Body mass index did not differ between men (32.5+/-3 kg/m2) and women (32.6+/-5 kg/m2). Sweet taste sensitivity was slightly higher in women than in men, but differences were not significant (2.4+/-1.3 vs 2.2+/-2; P=0.231). Sweet taste perception was inversely correlated with body-weight in the whole population (r=-0.122; P=0.017). In the GWAs for sweet taste perception in the whole population, the top-ranked SNPs associated with this taste were: a) rs837231in FAM49B gene, with the minor allele associated with higher sweet taste perception (B=0.44; P=8.9E-06); b) the rs9382934 in chromosome 6 (intergenic), the minor allele being associated with higher sweet taste sensitivity (B=0.64; P=9.5E-06). Interestingly, when we analyzed gene-gender interactions, we observed three polymorphisms reaching the GWAs P-value of significance: rs4670352 (P-int=9.50E-09), rs7600640 (P-int=2.17E-08) and rs12712378 (P-int=3.94E-08).