Exploring the Impact of TAS2R38 Gene Polymorphism on BMI and Body Fat Percentage Among Qatari Adolescents

Al-Thabhani, Turki (School: Qatar Science and Technology Secondary School for Boys)
Al-Hardan , Abdulaziz (School: Qatar Science and Technology Secondary School for Boys)

TAS2R38 gene encodes a bitter taste receptor protein that influences the perception of bitter compounds such as phenylthiocarbamide PTC. Specific polymorphisms within TAS2R38 have been linked to variations in taste sensitivity and potentially, body weight. This study investigates the association between TAS2R38 polymorphisms and body composition in Qatari adolescents. We analyzed 120 Qatari adolescents (aged 15-17) categorized as underweight, normal, overweight, or obese based on BMI values and body fat percentage. PTC taste testing was used to classify participants as tasters (likely PAV allele carriers) or non-tasters (likely AVI allele carriers). Genotyping for rs713598 (G/C) and rs1726866 (T/C) polymorphisms was performed using Restriction Fragment Length Polymorphism (RFLP) and Amplification Refractory Mutation System (ARMS) PCR, respectively. We observed a statistically significant association using Chi Square test ?? (0.01) between TAS2R38 polymorphisms and body composition. PAV carriers (tasters) were more prevalent in the underweight group, while AVI carriers (non-tasters) were more frequent in overweight and obese categories. This trend held true for body fat percentage, with PAV/PAV diplotype enriched in the lean category and AVI/AVI genotype more common in overweight and obese groups. Although a deviation from Hardy-Weinberg Equilibrium suggests potential population-specific factors, these findings highlight a potential link between TAS2R38 polymorphisms and body composition in adolescents. This study provides preliminary evidence suggesting TAS2R38 polymorphisms might influence body composition in adolescents. Future research with larger and more diverse populations is warranted to confirm these findings and elucidate the underlying mechanisms.

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