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The impact of the catechol-O-methyltransferase genotype on vascular function and blood pressure after acute green tea ingestion.

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Abstract

SCOPE: Evidence for the benefits of green tea catechins on vascular function is inconsistent, with genotype potentially contributing to the heterogeneity in response. Here, the impact of the catechol-O-methyltransferase (COMT) genotype on vascular function and blood pressure (BP) after green tea extract ingestion are reported.

METHODS AND RESULTS: Fifty subjects (n = 25 of the proposed low-activity [AA] and of the high-activity [GG] COMT rs4680 genotype), completed a randomized, double-blind, crossover study. Peripheral arterial tonometry, digital volume pulse (DVP), and BP were assessed at baseline and 90 min after 1.06 g of green tea extract or placebo. A 5.5 h and subsequent 18.5 h urine collection was performed to assess green tea catechin excretion. A genotype × treatment interaction was observed for DVP reflection index (p = 0.014), with green tea extract in the AA COMT group attenuating the increase observed with placebo. A tendency for a greater increase in diastolic BP was evident at 90 min after the green tea extract compared to placebo (p = 0.07). A genotypic effect was observed for urinary methylated epigallocatechin during the first 5.5 h, with the GG COMT group demonstrating a greater concentration (p = 0.049).

CONCLUSION: Differences in small vessel tone according to COMT genotype were evident after acute green tea extract.

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