Familial components of the multiple metabolic syndrome: the ARIC study

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The association of a parental history of diabetes mellitus and hypertension with the multiple metabolic syndrome (MMS) was studied in a population survey of middle-aged adults. The eligible population was drawn from the baseline examination of the Atherosclerosis Risk in Communities Study, a population-based, bi-ethnic, multi-centre cohort study. The MMS was defined as a multivariate, categorical phenotype of co-occurring diabetes, hypertension, and dyslipidaemia. MMS cases (n = 356) were compared to disorder-free control subjects (n = 6797) with respect to their parental history of diabetes and hypertension. MMS cases were more likely to report a history of diabetes in both parents (odds ratio [OR] 4.7, 95% confidence interval (CI) 1.5-14.7) or a history of hypertension in both parents (OR 1.9, 95% CI 1.1-3.0) than control subjects, adjusting for BMI, waist-to-hip ratio, age, gender, and ethnicity/centre. A parental history of diabetes and hypertension in both parents was associated with the greatest increase in odds of MMS (OR 8.3, 95% CI 3.0-22.8). A dose-response relationship between the number of parental disorders (one; two; three to four) and the odds of MMS was observed (OR 1.2, 95% CI 0.9-1.7; OR 2.0, 95% CI 1.4-2.8; OR 4.0, 95% CI 2.5-6.2). Based on the marked associations observed between a parental history of MMS components and the clustering of these metabolic disorders in the offspring generation, we conclude that genetic and/or non-genetic familial influences play a role in the development of the multiple metabolic syndrome.

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