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TI

The putative role of the hormone-sensitive lipase gene in the pathogenesis of type II diabetes mellitus and abdominal obesity.

AU

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DT

Article

LA

English

ED

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AB

Impaired lipolysis has been proposed as a pathogenic factor contributing to clustering of abdominal obesity and dyslipidaemia in Type II (noninsulin-dependent) diabetes mellitus - that is, the metabolic syndrome (MSDR). As this syndrome clusters in families, alterations in the hormone-sensitive lipase (HSL) gene could contribute to the genetic predisposition to MSDR. To test this hypothesis we carried out population and intrafamily association studies in individuals with MSDR, using a polymorphic marker (LIPE) in the HSL gene. There was a significant difference in allele frequency distribution between 235 Type II diabetic patients and 146 control subjects ($p = 0.002$), particularly between 78 abdominally obese Type II diabetic patients with MSDR and the control group ($p = 0.010$). An extended transmission disequilibrium test (TDT) showed transmission disequilibrium of 66 alleles to 42 nondiabetic, abdominally obese offspring in families with Type II diabetes ($p < 0.05$). A slight difference in allele frequency distribution was seen between 71 individuals from the lowest and 71 from the highest tertile of isoprenaline-induced lipolysis in fat tissue ($p = 0.07$). No missense mutations were found with single-strand conformational polymorphism (SSCP) in 20 abdominally obese subjects with MSDR. In conclusion, our population and intrafamily association studies suggest that the LIPE marker in the HSL gene is in linkage disequilibrium with an allele and/or gene which increases susceptibility to abdominal obesity and thereby possibly to Type II diabetes.

CC

Endocrine - General 17002
Genetics - Human 03508
Enzymes - General and comparative studies: coenzymes 10802
Metabolism - Metabolic disorders 13020
Nutrition - Malnutrition and obesity 13203
Cardiovascular system - General and methods 14501

IT

Major Concepts
Endocrine System (Chemical Coordination and Homeostasis); Genetics; Nutrition

IT

Diseases
abdominal obesity: nutritional disease
Obesity (MeSH)

IT

Diseases
metabolic syndrome: endocrine disease/pancreas, nutritional disease, vascular disease, metabolic disease, Syndrome X, insulin resistance syndrome

IT

Diseases

non-insulin-dependent diabetes mellitus: endocrine disease/pancreas, metabolic disease, pathogenesis, type II diabetes mellitus
Diabetes Mellitus, Non-Insulin-Dependent (MeSH)

IT

Chemicals & Biochemicals
human hormone-sensitive lipase gene [HSL gene]: allele, linkage disequilibrium

ORGN

Classifier
Hominidae 86215
Super Taxa
Primates; Mammalia; Vertebrata; Chordata; Animalia
Organism Name
human
Taxa Notes
Animals, Chordates, Humans, Mammals, Primates, Vertebrates

RN

9001-62-1 (LIPASE)
9004-10-8 (INSULIN)