

Genetics of Human Obesity: An Overview

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ABSTRACT Obesity is a complex, heterogeneous group of disorders that is determined by genes, environmental factors and interaction between genes and environment. Body Mass Index (BMI) is a proxy measure for obesity and is the most commonly studied marker for it. Obesity is becoming an increasingly important clinical and public health challenge through out the world. It is associated not only with an increased burden of non-insulin diabetes, hypertension, cardiovascular diseases, some types of cancers and premature mortality but also with the social and psychological effects of excess weight. Because of its larger population size, the developing world has faced with larger burden of overweight and obesity. Several studies have shown that changes in dietary patterns, physical activity levels and life styles associated with diet and urbanization are related to increasing incidence of obesity in India. The risk of obesity is about two to three times higher for an individual with a family history of obesity and it increases with the severity of obesity. In this paper, we present a broad historical overview of the studies on the genetic etiology of human obesity, including the recent studies involving candidate gene and whole genome scan approaches using case-control and family samples. The uniqueness of Indian population structure and its relevance to understanding and/or for disentangling the genetic etiology of complex genetic disorders in general and particularly of human obesity has been emphasized.