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## A central role of obesity and metabolic syndrome in Cardiovascular Diseases

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**Background:** Obesity is independently associated with the risks for coronary heart disease, atrial fibrillation, and heart failure. The higher prevalence of cardiovascular disease in obese individuals is indirectly mediated, to a large extent, by the increased frequency of various well-known risk factors like hypertension, diabetes, and dyslipidemia, either individually or as part of the metabolic syndrome. The study was designed to evaluate the Incidence of cardiovascular diseases and their relationship with obesity and metabolic syndrome.

**Methods:** A Medline search using the following keywords (obesity, cardiovascular disease, body mass index, cardiovascular risk factors, and metabolic syndrome) was performed looking for high impact factor English-written references.

**Results:** Early childhood overweight and obesity have alarmingly increased over the years. Adulthood obesity is a well-demonstrated significant independent predictor of cardiovascular risk (CVR) and/or mortality, which predisposes to the major components of metabolic syndrome (MS). CVD risk factors, such as elevated blood pressure, elevated total cholesterol and LDL cholesterol (LDL-C), and low levels of HDL cholesterol (HDL-C) track from childhood, although less strongly than BMI. Overweight children also tend to have a cluster of risk factors. Risk factors tend to occur in families and are especially evident in children when an adult relative is obese. All of this suggests that the obese child has an elevated risk of developing CVD in adulthood. A BMI greater than the 70th percentile versus the 25th to 50th percentiles in childhood resulted in a greater relative risk of coronary heart disease (CHD) mortality in men but not in women. The relationship between Obesity parameters and risk is a continuum, with risk factors significantly increasing even at levels usually considered non-obese.

**Conclusions:** Risk estimates from population studies suggest that 75% of hypertension can be directly attributed to obesity. Obesity might also promote preclinical atherosclerotic changes via a direct effect on vascular physiology. Greater adiposity in childhood or adolescence has been associated with greater cardiovascular and all-cause mortality in adult life.

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