Abstract

In the 1966 study of the population of Busselton, Australia, blood sugar and serum insulin levels were measured one hour after an oral glucose load, in addition to the conventional cardiovascular risk factors. The six-year incidence of coronary heart disease (CHD) and the 12-yr mortality from CHD and from all cardiovascular diseases is described in relation to the initial baseline variables measured using the upper 20th percentile values (age-specific and sex-specific) to define the risk ratios. In younger subjects (ages less than 60 yr), elevated blood pressure levels for both sexes (risk ratios from 2.9 to 5.2) and elevated serum cholesterol concentrations for males (risk ratios from 3.0 to 3.3) were strong predictors of cardiovascular risk. In men aged 60 to 69 yr, those with upper range one-hour serum insulin concentrations showed marked associations with the six-year incidence of CHD, the 12-yr mortality from CHD, and the 12-yr mortality from all cardiovascular diseases (risk ratios were 2.0, 2.3, and 2.4, respectively). The relationship of elevated serum insulin and cardiovascular mortality persisted when males of all ages were analyzed, and it appeared to be independent of the other major risk factors. In females, no association between serum insulin and CHD or cardiovascular disease could be found. Although the age and sex specific upper 20th percentile values for one-hour blood sugar concentrations showed a low grade association in patients with subsequent cardiovascular disease end points, more noticeable risk ratios were demonstrated at the higher blood sugar level of 200 mg/100 ml or greater (in the age group 60 yr and over, risk ratios were 2.2 in males and 2.6 in females.)