Published Research Articles International Journal of Cardiovascular Imaging - INT J CARDIOVASC IMAGING , vol. 27, no. 3, pp. 335-341, 2011

Silent ischemia in relation to insulin resistance in normotensive prediabetic adults: early detection by single photon emission computed tomography (SPECT)

Gamela Nasr, Hamdy Sliem

ABSTRACT

Myocardial perfusion imaging (MPI) is a powerful diagnostic and prognostic tool for evaluating coronary artery disease (CAD). Several studies have shown that it is increased in individuals with type 2 diabetes. Also, insulin resistance is generally considered to be of major importance in the pathophysiology of type 2 diabetes mellitus. However the area of screening prediabetics for coronary artery disease remains unclear. Given that glucose intolerance and insulin resistance precede the development of overt diabetes, these factors would be associated with ischemic heart disease. Evaluate the state of myocardial perfusion in prediabetic adults detected by Single photon emission computed tomography (SPECT) in relation to insulin resistance. A descriptive study was performed. For 163 consecutive prediabetic adults of whom 62 had insulin resistance (group A) and 101 had insulin sensitivity (group B). All were subjected to full medical history and clinical examination including blood pressure, waist circumference body mass index. Biochemical studies including lipids profile, fasting glucose and HOMA test. Exercise treadmill technetium 99 sestamibi SPECT scintigraphy were done for assessment of myocardial perfusion assessed by summed difference score as well as occurrence of transient left ventricular dilatation. Significant increase in summed difference score as well as transient left ventricular dilatation were observed in group A than group B. It is correlated with insulin resistance and the correlation appears to be independent of glucose tolerance status and obesity. Similar correlations were observed with age, triglycerides and waist circumference. Prediabetics have myocardial perfusion defects which represent a pattern of cardiovascular risk factors. These changes are predominantly observed in these prediabetics with increased HOMA IR and visceral obesity independent of glucose levels.