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The association of brachial-ankle pulse wave velocity with 30-minute post-challenge plasma glucose level in Korean adults with fasting hyperglycemia

Department of Endocrinology and metabolism, Kangbuk Samsung Hospital, Sungkyunkwan University School of Medicine, Seoul, Korea

*Eun-Suk Choi, Eun-Jung Rhee, Ji-Hoon Kim, Jong-Chul Won, Cheol-Young, Won-Young Lee, Ki-Won Oh, Sung-Woo Park, Sun-Woo Kim

Background: Brachial-ankle pulse wave velocity(baPWV) is considered as a good marker for arterial stiffness, a pathologic change observed in early atherosclerosis. Recent studies report more importance of post-prandial glucose levels compaired with fasting glucose levels in the development of atherosclerosis. We analyzed the relationship of baPWV with fasting and post-challenge plasma glucose levels in the oral glucose tolerance test. **Methods:** In 664 subjects with fasting hyperglycemia(≥110mg/dL), 75g oral glucose tolerance test(OGTT) were performed to confirm the glucose tolerant status, and fasting, post-challenge 30-minute and 120-minute glucose levels were measured. Anthropmetric measurements were done, and fasting lipid profiles were measured. baPWV were measured in all subjects and the relationship between fasting, 30- and 120-minute post-challenge glucose levels and baPWV were analyzed. **Results:** Mean age was 47.38years and mean body mass index was 25.3kg/m2.Among the plasma glucose levels measured during 75g OGTT, mean values for fasting, post-challenge 30-minute and 120-minute were 119.0±18.6, 186.07±34.0, and 162.76±56.7mg/dL. Fasting plasma glucose level showed significantly negative correlation with high-density lipoprotein cholesterol(HLD-C) level and post-challenge 30-minute plasma glucose level showed significantly positive correlation with low-density lipoprotein cholesterol(LDL-C), and 120-minute plasma glucose level showed significantly positive correlation with total cholesterol, LDL-C levels, and negative correlation with HDL-C level. baPWV values showed significant positive correlations with post-challenge plasma glucose at both 30- and 120-minutes, but not with fasting plasma glucose levels. In linear regression analyses with baPWV as the dependent variable with only OGTT glucose levels and age as the independent variables, age and post-challenge 30-minute plasma glucose level were the significant determinants for baPWV values. **Conclusions:** Among the plasma glucose values in 75g OGTT, post-challenge 30-minute plasma glucose level showed mostly singificant correlation with baPWV in subjects with fasting hyperglycemia.

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Cutoff points of visceral obesity-related parameters to predict the metabolic syndrome in Koreans

서울대학교병원 내분비대사내과[1]

*김진택[1], 조화영[1], 이은경[1], 구윤희[1], 정인경[1], 조영민[1], 박경수[1], 김성연[1], 이홍규[1]

Background: Visceral obesity plays an important role in metabolic syndrome and cardiovascular diseases. We investigated to identify the cutoff points of visceral obesity-related parameters that best predict the risk of metabolic syndrome in Korean men and women. **Methods:** Participants were recruited from local community residents (95 men and 185 women, 54±7 yrs old). Demographic, anthropometric, and laboratory data were collected and 75 g oral glucose tolerance tests were done in all subjects. Carotid intima-media thickness (IMT) was evaluated by B-mode ultrasonography and the cross sectional visceral and subcutaneous fat areas were measured by abdominal CT scan at umbilicus level. **Results:** Sixty-three of two-hundred and eighty subjects had metabolic syndrome defined by NCEP ATP III criteria. Using receiver operating characteristics (ROC) curves, visceral fat area of 100 cm2 was found to best predict metabolic syndrome (the area under curve = 0.830), and waist circumference of 82 cm in women and 86 cm in men corresponded to the fat area in linear regression models. In addition, ROC curve showed the ratio of visceral to subcutaneous fat areas of 0.6 was the cutoff point to best predict metabolic syndrome. Subjects with relative visceral obesity (visceral/subcutaneous fat area < 0.6) exhibited a higher waist circumference, a higher fasting plasma glucose level, a higher serum creatinine level, a higher serum uric acid level, higher serum alanine transaminase and aspartate transaminase levels, a higher serum triglyceride level, a lower serum HDL-cholesterol level, and a higher mean IMT. **Conclusion:** The present study suggests the cutoff points of visceral obesity-related parameters that best correlate metabolic syndrome. The waist circumference of 82 cm in women and 86 cm in men would be useful to represent the increased visceral fat area in Koreans.