ASSOCIATIONS OF AGE-DEPENDENT IGF-1 STANDARD DEVIATION SCORES WITH BMI AND WAIST-TO-TALLNESS RATIO

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Findings of the association of IGF-1 with BMI and abdominal fat accumulation are inconclusive. Recently, age-dependent standard deviation scores (IGF-1 SDS) for IGF-1 assessment with an automated chemiluminescence assay (Nichols advantage) in a healthy population have been published (Brabant et al. 2003). We have measured IGF-1 levels with the Nichols advantage system and assessed cardiovascular risk factors and diseases in 6,282 patients from the DETECT study (www.detect-studie.de), a clinical-epidemiological study of cardiovascular risk in primary care. IGF-1 SDS were calculated according to Brabant et al. and examined in different groups of BMI (17.5-20; 20-22.5; etc., up to 42.4) and waist-to-tallness ratio (WTR), an approximation of abdominal fat distribution (0.35-0.4; 0.4-0,45; etc., up to 0.85). Analysis of IGF-1 SDS vs. BMI revealed an inverse U-shaped curve. Women had the highest SDS at a BMI of 27.5-30 with 0.21 and the lowest values at BMI levels of 40-42.5 (-0.46) and 17.5-20 (-0.07). In men the IGF-1 SDS was highest at a BMI of 22.5-25 (0.07) and lowest at 35-37.5 (-0,36) and 20-22.5 (-0.14), respectively. For WTR a similar curve was found in women (highest SDS at WTR of .55-.6 (0.2), lowest at .35-.4 (-0.24) and at .8-.85 (-0.4), respectively) but a different pattern was seen in men: here IGF-1 SDS were highest at the lowest WTR group of 0.4-.45 with 0.04 and steadily decreasing to the WTR of .75-.8 (-0.36). The results remained similar when patients with arteriosclerosis were excluded. These results show sexually dimorphic associations of IGF-1 with BMI and WTR. The different patterns regarding WTR imply a unidirectional association of abdominal fat with IGF-1 in men and a bidirectional one in women. These interactions should be taken into account when analysing the association of IGF-1 to cardiovascular risk.