Appearance of acanthosis nigricans may precede obesity: An involvement of insulin/IGF receptor signaling pathway

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Abstract

Obesity is one of the leading causes of preventable death. Complication of child obesity include cardiovascular risks, type 2 diabetes mellitus, impaired glucose tolerance, and acanthosis nigricans (AN). AN is associated with obesity as a manifestation of cutaneous insulin resistance, while the interaction between AN and obesity and detail mechanism for the pre- and co-obese appearance of AN in child are still unrevealed. In this pioneer study, the involvement of insulin/IGF receptor pathway in child pre- and co-obese AN was investigated via studying the association of polymorphisms of INSR, IRS1, IGF1R genes with pre- and co-obese AN. In total, 99 children pre- and co-obese AN patients and 100 healthy controls recruited were genotyped and analyzed by PCR-RFLP method. Significantly different distributions were found in the frequency of the INSR His1085His and IGF1R IVS7-20 genotypes, but not in IRS1 Ala804Ala or IGF1R Thr766Thr genotypes, between the AN and control groups. The T allele of INSR His1085His and the C allele of IGF1R IVS7-20 both conferred a significant (p=0.04 and 2.84E-6, respectively) increased risk of AN. Our results provide not only the evidence of the T allele of INSR His1085His and the C allele of IGF1R IVS7-20 are correlated with the appearance of AN precede or concurrence with obesity but revealed that insulin/IGF receptor pathway may play an important role in this pre- and co-obese AN.