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Commentary

APOAV (T-1131>C) variant has no effect on mother's height in a large population study

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Abstract

The important role of *APOAV* gene T-1131>C variant in determination of plasma triglyceride levels has been proved on many population studies. Recently, associations between C-1131 allele and higher mother's height as well as with longer fetal birth length were suggested.

In 1,305 females, aged between 28 and 67 years and having at least one child, we have analyzed a putative association between T-1131>C *APOAV* variant (analyzed by PCR and restriction analysis) and body height.

Mother's body height did not differ between T/T homozygotes (N = 1093, 162.5 ± 6.5 cm) and C allele carriers (N = 212, 162.1 ± 6.4 cm). Thus we have failed to confirm, that mothers with *APOAV* C-1131 allele are higher than T/T-1131 homozygotes.

Introduction

We read with interest the study by Ward *et al*. [1] on the association between the T-1131>C *APOAV* variant and plasma levels of triglycerides in pregnancy. In agreement with some previously published population's studies with different design [2-8], they described an association between higher levels of plasma triglyceride and the presence of C-1131 allele also in a group of healthy pregnant women. Additionally, they have found an interesting association between allele C-1131 and higher mother's height and as well as with fetal birth length.

The T-1131>C variant has been intensively studied over the last couple of years. The C allele is undoubtedly associated not just with higher plasma TG levels [2-7], but also with higher VLDL-TG levels [9] what could influence fetal growth [10,11] and theoretically also final height of the body in adulthood, as suggested by Ward *et al*. [1].

Discussion

Using a previously described method [5,12], we analyzed the T-1131>C variant in a total of 1,367 unrelated Caucasians females aged 48.8 ± 10.6 years in 2000/2001 recruited as a representative 1% population sample [*Multinational monitoring of trends and determinants in cardiovascular diseases: MONICA Project*, Manual of operations WHO/MNC 82.2, Nov 1983]. Written informed consent was obtained before the blood samples were taken and measurements being performed. 62 females have no children. In 1,305 females, having at least one child, we have analyzed a putative association between *APOAV* T-1131>C variant and body height by ANOVA. The size of

Table 1: *APOAV* T-1131>C variant and height in women

APOAV genotype	T-1131T	+ C-1131
N	1093	212
Height (cm)	162.5 ± 6.5	162.1 ± 6.4

Data are presented as means ± s. d. No significant association was found.

the analyzed population minimized the chances of false negative or false positive results.

As mentioned before, standard association between elevated levels of plasma triglycerides and the presence of the C-1131 allele was found [5,6].

In contrast to Ward *et al*. [1], we found no association between the T-1131>C variant in the *APOAV* gene and mother's body height, see Table 1. Thus the association described by Ward *et al*. [1] need not be generally valid.

Plasma triglycerides represent the most important source of fatty acids utilized by fetus through pregnancy. About 50% of these fatty acids are derived from maternal circulation [13]. It has been found that maternal VLDL-TG concentrations are positively correlated with birth weight [10,11]. In respect of these findings the same effect of VLDL-TG concentrations on birth length could be supposed. However results reveal that birth length seemed to be affected by many maternal factors [10] shading expected effect of TG.

Nevertheless, adult body height, which slightly correlate with birth length, although undoubtedly genetically determined, will be in last century strongly influenced by abundant availability of food sources in industrially developed countries and this environmental effect could mask the influence of the genes.

Conclusions

More than 1300 unrelated Caucasian females were included in this study. We conclude that the T-1131>C variant in the *APOAV* gene has no general effect on mother's body height. Nevertheless, *APOAV* gene and its variants [3,14] remain to be candidate gene for genetic determination of newborn's length/weight.

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