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The association between TCM syndromes and SCAP polymorphisms in subjects with non-alcoholic fatty liver disease

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Introduction: In Western medicine, non-alcoholic fatty liver disease (NAFLD) is diagnosed by imaging, histology and biochemical parameters. Traditional Chinese Medicine (TCM) uses unique diagnostic techniques to classify NAFLD into subtypes based on different TCM symptoms (syndrome classification). Sterol regulatory element-binding protein (SREBP), also known as SREBP cleavage-activating protein or SCAP is encoded by the SCAP gene SCAP genes have important functions in defining genetic susceptibility to NAFLD. This study investigated whether the polymorphisms of SREBF-1, SREBF-2, and SCAP genes were associated with the TCM syndromes of NAFLD.

Materials and methods: Fourteen tag single nucleotide polymorphisms (SNPs) of SREBF-1, SREBF-2, and SCAP were chosen for our study We genotyped and analyzed 100 healthy control subjects and 211 NAFLD subjects who were classified by TCM into two groups, namely, deficiency syndrome group and excess syndrome group.

Results: The results showed that rs12636851 SNP of SCAP exhibited a significant genotype and allelic variation between the deficiency syndrome and healthy control subjects, as well as between the deficiency and excess syndrome subjects In the deficiency syndrome group, the subjects who had the CC or TC genotype of SCAP rs12636851 had a threefold elevated risk for NAFLD compared with the TT genotype (adjusted OR, 3107; 95% CI, 1023-9433, P=0.045; adjusted OR, 2970; 95% CI, 1121-7864, P=0.028).

Discussion: We speculate that the SCAP rs12636851 SNP in the deficiency syndrome subjects affects the cholesterol-sensing function of SCAP, increasing cholesterol and fatty acid synthesis in liver Therefore, this SNP may help in the understanding of the genetic basis of NAFLD patients with deficiency syndrome and in the development of personalized medical care.

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