Relationship between zinc finger protein 36 (ZFP36) gene polymorphisms and obstructive sleep apnea

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Received August 20, 2014
Accepted January 21, 2015
Published June 18, 2015
DOI http://dx.doi.org/10.4238/2015.June.18.17

ABSTRACT. Recent data have indicated that inflammation may have an important correlation with obstructive sleep apnea (OSA). Studies have indicated a relationship between OSA and TNF-α gene polymorphisms. Zinc finger protein 36 (ZFP36) regulates TNF-α mRNAs. However, ZFP36 gene polymorphisms have not been investigated in OSA. Therefore, we conducted the present case-control study to assess whether variances in ZFP36 gene polymorphisms account for differences in TNF-α levels in patients with moderate-to-severe OSA. This case-control study aims to investigate the relationship between genetic variations in the ZFP36 gene and moderate-to-severe OSA. Three common single nucleotide polymorphisms of the ZFP36 gene (rs251864, rs3746083, and rs17879933) were evaluated in a group of patients with moderate-to-severe OSA (N = 408) and in a control
group (N = 394) by using TaqMan polymerase chain reaction analysis. The moderate-to-severe OSA group and the control group exhibited significant differences in the distributions of rs251864 and rs17879933 genotypes and alleles (P < 0.05). TNF-α levels were significantly different not only among the three rs251864 genotypes but also between the II genotype and the DD + ID genotypes of rs17879933. However, no significant differences in sleep apnea parameters in the three ZFP36 gene polymorphisms were observed. Logistic regression analyses demonstrated that TNF-α and the three ZFP36 gene polymorphisms were not independently associated with OSA. ZFP36 might be involved in TNF-α regulation. However, ZFP36 gene variants were not independent risk factors for moderate-to-severe OSA.

Key words: Obstructive sleep apnea; Zinc finger protein 36; Tumor necrosis factor-α; Gene polymorphisms