› Sleep Breath. 2013 Sep;17(3):1029-37. doi: 10.1007/s11325-012-0795-y. Epub 2013 Jan 31.

Angiotensin-converting Enzyme Gene Polymorphism in North Indian Population With Obstructive Sleep Apnea

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PMID: 23371888 DOI: 10.1007/s11325-012-0795-y

Abstract

Background: A deletion of 287-bp Alu repeat of angiotensin-converting enzyme (ACE) insertion/deletion (I/D) gene is associated with hypertension.

Purpose: The aim of this study is to determine the frequency of ACE (I/D) polymorphism in patients with obstructive sleep apnea (OSA).

Methods: Genotyping of ACE (I/D) gene polymorphism and estimation of serum angiotensin-converting enzyme (SACE) activity were done in 813 subjects who underwent polysomnography. Of these, 395 were apneics and 418 were non-apneics.

Results: The frequencies of II genotype (OR = 1.8, 95 % CI 1.26-2.60, p = 0.001) and I allele (OR = 1.4, 95 % CI 1.13-1.69, p = 0.001) of ACE gene were found to be significantly increased in patients with OSA as compared to patients without OSA. Frequency of II genotype was significantly decreased (OR = 0.46, 95 % CI 0.28-0.77, p = 0.003) in OSA patients with hypertension. In contrast, the frequencies of ID (OR = 1.80, 95 % CI 1.08-2.99, p = 0.024) and DD genotypes (OR = 2.15, 95 % CI 1.30-3.57, p = 0.003) were significantly increased in this group. The activity of SACE was significantly decreased in the apneic group as compared to the non-apneic group (OR = 0.99, 95 % CI 0.98-1.00, p = 0.04).

Conclusions: The findings suggest that II genotype confers susceptibility towards development of OSA whereas DD genotype confers susceptibility towards hypertension irrespective of OSA.