



Study of the correlation between ACE gene polymorphism and coronary artery disease

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Abstract

Introduction: Angiotensin converting enzyme (ACE) is an exopeptidase that converts Angiotensin I to Angiotensin II. Angiotensin II is a potent vasoconstrictor and releases aldosterone, and have a critical role in hypertension. In this study, ACE insertion / deletion (I/D) polymorphism and ACE activity was determined in patients with coronary artery disease (CAD) and normal subjects. The correlation of these parameters with important CAD risk factors were also evaluated.

Methods: 204 subjects were assigned to patients and normal groups based on their angiography results. Serum ACE activities were assayed by HPLC and I/D polymorphism were analyzed by PCR method. Important risk factors such as diabetes mellitus, hypertension, lipid profiles, ejection fraction, smoking and opium consumption were also recorded.

Results: CAD was higher in DD genotype subjects (OR= 2.45; CI= 1.05-5.73), and ACE activity was about twice in DD compared to II genotypes. ACE activity was higher in hypertensives and diabetics in CAD group ($p < 0.001$), but in the normal group it did not have any correlation with these risk factors. The rate of opium use was higher in ID and DD subjects.

Conclusion: DD genotype is a risk factor for CAD and ACE activity is higher in this genotype. However, there is not any correlation between ACE activity and CAD.

Key words: Angiotensin converting enzyme, Coronary artery disease, CAD, Insertion / deletion polymorphism.

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