

CHANGES OF α_1 -ADRENOCEPTOR SUBTYPES MRNA AMOUNT IN HUMAN BENIGN PROSTATIC HYPERPLASIA CONCOMITANT WITH HYPERTENSION

Hypothesis / aims of study

To investigate the changes of α_1 -adrenoceptor subtypes mRNA amount in human benign prostatic hyperplasia(BPH) concomitant with hypertension.

Study design, materials and methods

47 fresh specimens of BPH tissue were obtained by transurethral resection and divided 2 groups, simple BPH group contained 23 cases while BPH with hypertension group has 24cases. The diagnosis of hypertension was according to clinical criteria and the blood pressure was controlled well. RT-PCR was used to determine the amount of α_{1A} 、 α_{1B} 、 α_{1D} adrenoceptor subtypes mRNA in each BPH tissue specimen.

Results

In all 47 specimens, the mRNA amounts of α_{1A} 、 α_{1B} 、 α_{1D} adrenoceptor subtypes were 0.95 ± 0.22 , 0.97 ± 0.16 , 1.00 ± 0.28 ($P>0.05$) and the ratio of them was 32.4% : 33.1% : 34.5%, respectively. Between simple BPH group and BPH with hypertension group, the mRNA amounts of α_1 receptor and α_{1B} receptor subtype were no difference, but α_{1A} and α_{1D} receptor subtypes mRNA amounts were changed. In BPH with hypertension group, the amounts of 3 subtypes mRNA were 1.06 ± 0.16 , 0.95 ± 0.14 , 0.84 ± 0.17 ($P<0.05$) and the ratio was 37.1% : 33.4% : 29.5%. The amount of α_{1A} subtype mRNA was dominant and higher than simple BPH group($P<0.05$). In simple BPH group, the amounts of 3 subtypes mRNA were 0.83 ± 0.22 , 0.98 ± 0.18 , 1.19 ± 0.27 ($P<0.05$) and the ratio was 27.7% : 32.7% : 39.4%. The amount of α_{1D} subtype mRNA was dominant and higher than BPH with hypertension group($P<0.05$).

Interpretation of results

The mRNA amounts of α_{1A} 、 α_{1B} 、 α_{1D} adrenoceptor subtypes were not different in BPH. However, the amount of α_{1A} subtype mRNA was dominant in BPH with hypertension group while α_{1D} subtype mRNA was dominant in single BPH group.

Concluding message

Compared to simple BPH group, the amount of α_{1A} -adrenoceptor subtype mRNA in the BPH with hypertension group was significantly increased. Focus on blocking α_{1A} -adrenoceptor subtype function may be more beneficial to the clinical treatment of BPH patients concomitant with hypertension.

References

1. McVary KT, Rademaker A, Lloyd GL, et al. Autonomic nervous system overactivity in men with lower urinary tract symptoms secondary to benign prostatic hyperplasia. J Urol. 2005;174(4 Pt 1):1327~433.
2. Michel MC, Heemann U, Schumacher H, et al. Association of hypertension with symptoms of benign prostatic hyperplasia. J Urol, 2004;172(4 Pt 1):1390~1393.
3. Nasu K, Moriyama N, Kawabe K, et al. Quantification and distribution of α_1 -adrenoceptor subtype mRNAs in human prostate: comparison of benign hypertrophied tissue and non-hypertrophied tissue. Br J Pharmacol, 1996;119(6):797~803.

Disclosures

Funding: no **Clinical Trial:** No **Subjects:** HUMAN **Ethics Committee:** Ethics Committee of 1st Affiliated Hospital of Fujian Medical University **Helsinki:** Yes **Informed Consent:** Yes