



Clinical efficacy of valsartan combined with hydrochlorothiazide in treatment of elderly hypertension

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ABSTRACT

Objective: To explore the clinical efficacy of valsartan combined with hydrochlorothiazide in the treatment of elderly hypertension. **Methods:** A total of 150 elderly patients with primary hypertension who were admitted in our hospital from January, 2015 to January, 2016 were included in the study and randomized into the observation group and the control group. The patients in the control group were given valsartan, 80 mg/time, 1 time/d. On this basis, the patients in the observation group were given additional hydrochlorothiazide 12.5 mg/time, 1 time/d. The patients in the two groups were administered with drugs in the morning. Six-month treatment was regarded as one course. The change of 24 h ambulatory blood pressure before and after treatment was detected, and the efficacy was evaluated. The heart color ultrasound was used to detect LVM and LVMI before and after treatment in the two groups. **Results:** The total effective rate in the observation group (90.7%) was significantly superior to that in the control group (70.7%) ($P < 0.05$). The mean SBP and DBP 24h after treatment in the two groups were significantly reduced when compared with before treatment ($P < 0.05$), and those in the observation group were significantly superior to those in the control group ($P < 0.05$). LVM and LVMI after treatment in the two groups were significantly reduced when compared with before treatment ($P < 0.05$), and those in the observation group were significantly superior to those in the control group ($P < 0.05$). **Conclusions:** The combination of valsartan and hydrochlorothiazide in the treatment of elderly hypertension can effectively enhance the clinical efficacy, and effectively control the blood pressure. It is superior to that by a single drug; therefore, and deserves to be widely recommended in the clinic.

1. Introduction

Old people are more prone to be involved in the primary hypertension which is a common risk factor for developing cardiovascular disease. According to the statistics, 39% people from 60 to 70 years old and 49 people more than 70 years old are suffered from the primary hypertension[1]. Hypertension is commonly merged with heart, brain, kidney, and target organ damage, which can give rise to coronary heart disease and cerebral stroke; therefore, effective blood pressure control is of great significance in reducing the cardiovascular events in patients with hypertension[2]. The peripheral vascular resistance reduction, the cardiac output

improvement, and renal function protection are mainly involved in the treatment of primary hypertension. Principles of individualized medication, sustained medication in a small dose, and combined medication should be abided by to effectively and steadily reduce the blood pressure[3]. Valsartan is an angiotensin II receptor antagonist, while hydrochlorothiazide is a diuretic, and their combination can produce a synergistic effect, with a satisfactory effect in controlling the blood pressure in the clinic[4]. The study is aimed to explore the clinical efficacy of valsartan in combined with hydrochlorothiazide in the treatment of elderly hypertension.

2. Materials and methods

2.1. General materials

A total of 150 elderly patients with primary hypertension who were

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admitted in our hospital from January, 2015 to January, 2016 were included in the study and randomized into the observation group and the control group. They were in accordance with the diagnostic and grading criteria of hypertension in the "Hypertension Prevention and Treatment Guideline of China"[5], and were merged with left cardiac hypertrophy. Those who had renal insufficiency, diabetes, malignant tumors, electrolyte disturbance, and were allergic to related drugs were excluded from the study. In the observation group, there were 75 cases, among which 43 were male, and 32 were female; aged from 62 to 81 years old, with an average age of (68.7±5.2) years old; course from 8 to 14 years, with an average course of (11.5±3.7) years; 31 at grade II, and 44 at grade III. In the control group, there were 75 cases, among which 44 were male, and 31 were female; aged from 63 to 81 years old, with an average age of (68.2±6.1) years old; course from 9 to 13 years, with an average course of (11.7±3.6) years; 32 at grade II, and 43 at grade III. The comparison of the general materials between the two groups was not statistically significant ($P>0.05$).

2.2. Methods

The patients in the two groups were given low-salt and low-fat diet, and appropriate exercise. The patients in the control group were given valsartan (Changzhou Siyao Pharm, Approval No. H20010823), 80 mg/time, 1 time/d. On this basis, the patients in the observation group were given additional hydrochlorothiazide (Xinan Hecheng Pharmaceutical Co. Ltd., Approval No. H20103543), 12.5 mg/time, 1 time/d. The patients in the two groups were administered with drugs in the morning. Six-month treatment was regarded as one course.

2.3. Observation indicators

The change of 24 h ambulatory blood pressure before and after treatment was detected. The efficacy was evaluated according to the "Hypertension Prevention and Treatment Guideline of China"[6]. Excellent: blood pressure was reduced to the normal; effective: the reduced degree of SBP >20 mmHg or the reduced degree of DBP 10

mmHg; invalid: the reduction of blood pressure was not reaching the standard. The heart color ultrasound was used to detect LVM and LVMI before and after treatment in the two groups.

2.4. Statistical analysis

SPSS 19.0 software was used for the statistical analysis. The measurement data were expressed as mean±SD, and t test was used. χ^2 -square test was used for the enumeration data. $P<0.05$ was regarded as statistically significant difference.

3. Results

3.1. Efficacy observation

After treatment, in the observation group, 51 (68.0%) were excellent, 17 (22.7%) were effective, 7 (9.3%) were invalid, and the total effective rate was 90.7%. In the control group, 29 (38.7%) were excellent, 24 (32.0%) were effective, 22 (29.3%) were invalid, and the total effective rate was 70.7%. The total effective rate in the observation group was significantly superior to that in the control group ($P<0.05$).

3.2. Change of 24 h ambulatory blood pressure

The mean SBP and DBP 24h after treatment in the two groups were significantly reduced when compared with before treatment ($P<0.05$), and those in the observation group were significantly superior to those in the control group ($P<0.05$) (Table 1).

3.3. Change of left ventricular hypertrophy

LVM and LVMI after treatment in the two groups were significantly reduced when compared with before treatment ($P<0.05$), and those in the observation group were significantly superior to those in the control group ($P<0.05$) (Table 2).

Table 1

Change of 24 h ambulatory blood pressure (mmHg, mean±SD).

Groups	n	SBP		DBP	
		Before treatment	After treatment	Before treatment	After treatment
Observation group	75	161.2±10.1	130.2±9.7*#	103.7±9.5	83.7±9.8*#
Control group	75	160.7±9.9	141.6±9.3*	102.8±10.7	92.3±8.3*

* $P<0.05$, when compared with before treatment; # $P<0.05$, when compared with the control group.

Table 2

Change of LVM and LVMI after treatment (mean±SD).

Groups	n	LVM (g)		LVMI (g/m ²)	
		Before treatment	After treatment	Before treatment	After treatment
Observation group	75	240.2±10.5	195.7±12.8*#	138.7±9.7	119.7±8.3*#
Control group	75	239.8±12.1	209.4±13.2*	137.6±8.6	126.4±9.3*

* $P<0.05$, when compared with before treatment; # $P<0.05$, when compared with the control group.

4. Discussion

The senile primary hypertension is a kind of common cardiovascular disease in the clinic, and is usually merged with heart, brain, kidney, and other vital organ damage, with an extremely high disability rate and fatality rate[7]. The sustained hypertension,

physiological fluctuation, and body function recession can place the vascular system in a loading state of high blood pressure, which can aggravate the damage of target organs, and further induce hypertensive heart disease and chronic renal failure to endanger the life with no effective treatment[8]. Medication is the only method to treat hypertension in the clinic, and selection of effective and

reasonable anti-hypertensive drugs is a key factor to estimate that whether blood pressure reaches the standard or not; therefore, the combined medication is often adopted in the clinic to reduce the dosage and adverse reactions in that different drugs can produce a synergistic effect to enhance the clinical efficacy and effectively reduce the blood pressure level[9].

It is reported by Fang *et al*[10] that hydrochlorothiazide in combined with valsartan in the treatment of senile hypertension can significantly reduce the blood pressure and day and night variation degree of blood pressure, with a total effective rate of 97.92% and preferable clinical effect. Valsartan is an angiotensin II receptor antagonist, and can expand the blood vessel, reduce the peripheral vascular resistance, remodel the blood vessel, inhibit the secretion of aldosterone, discharge the sodium, and restore the potassium by blocking its combination with the receptors[11]. Valsartan can also improve the hemodynamics, lower the renal vascular resistance to reduce the proteinuria and block the sustainable development of nephropathy, reduce the heart failure to a large extent, and avoid the risk brought by cerebral stroke[12]. Hydrochlorothiazide, a diuretic, can discharge the sodium, decrease the exudation of extracellular fluid, lower the blood volume, lessen the cardiac output, be involved in the renal mechanism to promote the secretion of aldosterone, and reduce the serum potassium and blood pressure[13]. The results in the study showed that the total effective rate in the observation group (90.7%) was significantly superior to that in the control group (70.7%) ($P<0.05$); the mean SBP and DBP 24 h after treatment in the two groups were significantly reduced when compared with before treatment ($P<0.05$), and those in the observation group were significantly superior to those in the control group ($P<0.05$), suggesting that the efficacy of hydrochlorothiazide in combined with valsartan in the treatment of primary hypertension is significantly superior to that by a single drug.

The left ventricular hypertrophy is one of the most common target organ damage caused by hypertension, and is an independent risk factor for developing myocardial infarction, arrhythmia, sudden death, and other cardiovascular events[14]. The left ventricular hypertrophy in elderly patients with hypertension is mainly associated with the continuous development of frontier and posterior loads, and myocardial cell damage or apoptosis, among which RAAS plays a vital role in the occurrence of left ventricular hypertrophy[15]. The excessive angiotensin II can increase the excitability of sympathetic nerve, stimulate the myocardial cells to increase the synthesis of proteins, resulting in myocardial hypertrophy, and can also induce the proliferation of collagen scaffold among the myocardial cells and collagen deposition to further aggravate the left ventricular hypertrophy[16]. Therefore, effective blood pressure control, LVM and LVMI reduction, and left ventricular hypertrophy reversion are important to reduce the occurrence of cardiovascular events in elderly patients with hypertension. The results in the study showed that LVM and LVMI after treatment in the two groups were significantly reduced when compared with before treatment ($P<0.05$), and those in the observation group were significantly superior to those in the control group ($P<0.05$), suggesting that hydrochlorothiazide in combined with valsartan can effectively alleviate the degree of left ventricular hypertrophy.

In conclusion, the combination of valsartan and hydrochlorothiazide in the treatment of elderly hypertension can effectively enhance

the clinical efficacy, and effectively control the blood pressure, superior to that by a single drug; therefore, it deserves to be widely recommended in the clinic.

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