

Comparison of Clinical Effects of Sacubitril Valsartan Sodium Tablets and Nifedipine Controlled-Release Tablets in the Treatment of Chronic Renal Insufficiency Complicated with Hypertension

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Abstract: *Objective:* To compare the clinical effects of using sacubitril valsartan sodium tablets with nifedipine controlled-release tablets in patients with chronic renal insufficiency combined with hypertension. *Methods:* 110 patients with chronic renal insufficiency combined with hypertension treated in our hospital from April 2023 to February 2024 were taken as the study subjects. They were divided into the test group (n = 55) and the comparison group (n = 55) by randomized numerical table method. The test group was provided with sacubitril valsartan sodium tablets and the comparison group was treated with nifedipine controlled-release tablets. The urine excretion rate of albumin and blood urea nitrogen levels as well as adverse effects were compared before and after treatment in both groups. *Results:* In the test group, the urinary albumin excretion rate was 101.77 ± 7.42 $\mu\text{g}/\text{min}$ and the blood urea nitrogen level was 15.81 ± 1.76 mmol/L , which was much lower than that of the comparison group; the total rate of adverse reactions in the test group was 1.82%, which was significantly lower than that of the comparison group, the difference between the data of the test group and the comparison group after treatment is statistically significant ($P < 0.05$). *Conclusion:* By providing treatment with sacubitril valsartan sodium tablets for patients with chronic renal insufficiency combined with hypertension, their urinary albumin excretion rate and blood urea nitrogen level are significantly improved, and the total occurrence rate of adverse reactions is low.

Keywords: Sacubitril valsartan sodium tablets; Nifedipine controlled-release tablets; Chronic renal insufficiency; Hypertension

Online publication: May 9, 2024

1. Introduction

Patients suffering from chronic renal insufficiency, due to the metabolites in the body cannot be normally

discharged to the outside of the body, usually have abnormal blood pressure, complicating hypertension, which in turn will lead to the aggravation of chronic renal insufficiency. The control of blood pressure in patients with chronic renal insufficiency is difficult compared to ordinary hypertension. Sacubitril valsartan sodium tablets and nifedipine controlled-release tablets are both commonly used medication to lower blood pressure, and their therapeutic effects differ. One hundred and ten patients with chronic renal insufficiency combined with hypertension treated in our hospital between April 2023 and February 2024 were taken as the study subjects, and are reported as follows.

2. General information and methods

2.1. General information

110 patients with chronic renal insufficiency combined with hypertension treated in our hospital between April 2023 and February 2024 were selected for the study and their general information is shown in **Table 1**. Consent was obtained from the patients and their families for this study. There was no statistically significant difference between the general information of the two groups ($P > 0.05$).

Table 1. Basic data of patients with chronic renal insufficiency combined with hypertension

Groups	Male patients	Female patients	Age	Average age
Test group (55 cases)	27 cases	28 cases	42–81 years	57.3 ± 8.1 years
Comparison group (55 cases)	26 cases	29 cases	44–78 years	59.2 ± 6.9 years

2.2. Methods

Nifedipine controlled-release tablets were provided for the patients in the comparison group, they were taken once a day, each time taking 30 mg, and the dose was maintained for 4 weeks^[1]. The patients' blood pressure and renal function indexes were tested regularly, and the dosage was adjusted based on the test results.

For the test group, sacubitril valsartan sodium tablets were taken twice a day, 100 mg each time, and the dosage was maintained for 4 weeks^[2,3]. The patients' blood pressure and renal function indexes were tested regularly, and the dosage was adjusted based on the test results.

2.3. Observation indexes

The urinary albumin excretion rate and blood urea nitrogen of patients in the test group and comparison group before and after treatment were compared. Statistics on the occurrence of adverse reactions in patients with chronic renal insufficiency combined with hypertension after treatment, including hyperkalemia, nausea and vomiting, and edema were recorded. The formula for calculating the total occurrence rate is as follows. Total occurrence rate = Number of cases of adverse reactions/Total number of cases × 100%.

2.4. Statistical analysis

SPSS22.0 statistical software was applied, *t*-test was used for the measurement data (mean ± standard deviation [SD]), and χ^2 test was used for the count data [n (%)], and $P < 0.05$ indicated a statistically significant difference.

3. Results

3.1. Comparison of urinary albumin excretion rate and blood urea nitrogen before and after treatment in two groups of patients

The urinary albumin excretion rate and blood urea nitrogen values of the 55 patients in the test group who were

treated with sacubitril valsartan sodium tablets were significantly better than those of the comparison group, and $P = 0.000$ (Table 2).

Table 2. Comparison of urinary albumin excretion rate and blood urea nitrogen before and after treatment in the two groups (mean \pm SD)

Groups	Before treatment		After treatment	
	Urinary albumin excretion rate ($\mu\text{g}/\text{min}$)	Blood urea nitrogen (mmol/L)	Urinary albumin excretion rate ($\mu\text{g}/\text{min}$)	Blood urea nitrogen (mmol/L)
Test group (55 cases)	139.82 \pm 11.59	19.68 \pm 1.04	101.77 \pm 7.42	15.81 \pm 1.76
Comparison group (55 cases)	139.87 \pm 11.56	19.53 \pm 1.12	126.66 \pm 10.56	17.25 \pm 2.03
<i>t</i>	0.023	0.728	14.302	3.975
<i>P</i>	0.982	0.468	0.000	0.000

3.2. Comparison of adverse reactions in two groups of patients with chronic renal insufficiency combined with hypertension

Only one case of nausea and vomiting was found in 55 patients with chronic renal insufficiency combined with hypertension in the test group, and the total rate of adverse reactions was 1.82%, which was significantly lower than that of the comparison group, and the P value was calculated to be 0.015 (Table 3).

Table 3. Comparison of adverse reactions in patients with chronic renal insufficiency combined with hypertension in the two groups [n (%)]

Groups	Hyperkalemia	Nausea and vomiting	Edema	Overall incidence
Test group (55 cases)	0 (0.00)	1 (1.82)	0 (0.00)	1 (1.82)
Comparison group (55 cases)	2 (3.64)	3 (5.45)	3 (5.45)	8 (14.55)
χ^2	-	-	-	5.930
<i>P</i>	-	-	-	0.015

4. Discussion

Chronic renal insufficiency is usually accompanied by hypertension, which is a major risk factor for exacerbation of the disease. If the blood pressure is uncontrolled, the condition will be aggravated gradually, thus the blood pressure is controlled with appropriate drugs to promote the recovery of the disease [4-7].

The antihypertensive mechanism of nifedipine controlled-release tablets is relatively single, resulting in the urinary albumin excretion rate and blood urea nitrogen in some patients not improving after a period of time, while the antihypertensive mechanism of sacubitril valsartan sodium tablets is more comprehensive, with a protective effect on the kidneys and a more satisfactory therapeutic effect. During the implementation of treatment for the two groups of patients, once adverse reactions occurred, the use of drugs should be stopped immediately [8-10].

In this study, after treatment with sacubitril valsartan sodium tablets, the urinary albumin excretion rate in the test group was 101.77 \pm 7.42 $\mu\text{g}/\text{min}$ and blood urea nitrogen was 15.81 \pm 1.76 mmol/L, which was significantly lower than that of the comparison group; there was only one case of adverse reactions, and the total rate of adverse reactions was 1.82%, which was significantly lower than that of the comparison group. The difference between the data of the test group and the comparison group after treatment was statistically

significance ($P < 0.05$).

Practice has shown that in the treatment of patients with chronic renal insufficiency combined with hypertension using sacubitril valsartan sodium tablets, the therapeutic effect is more satisfactory with a lower occurrence of adverse reactions.

5. Conclusion

In conclusion, patients with renal insufficiency combined with hypertension can be treated using sacubitril valsartan sodium tablets under the guidance of doctors, so as to promote the early recovery of the disease.

Disclosure statement

The authors declare no conflict of interest.

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