Journal of Clinical and Nursing Research

Research Article

Evaluation of Application Value of Brain Natriuretic Peptide in the Clinical Treatment of Cardiovascular Diseases

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Abstract: Objective: To explore the application value of brain natriuretic peptide in the clinical treatment of cardiovascular diseases. **Methods:** Choose 48 patients with cardiovascular diseases treated in our hospital from March 2015 to March 2016 and divide them into the treatment group and control group according to different treatment drugs and there are 24 cases in each group. The control group was treated with astragaloside IV, and the treatment group was treated with brain natriuretic peptide. Then compare their treatment effect, rehospitalization rate, the time of angina pectoris induced by exercise, the concentration of serum brain natriuretic peptide in patients under different cardiac function status between two groups. **Results:** The clinical effect of treatment group was better than the control group. The readmission rate was lower than the control group. The time of inducing angina pectoris by exercise was longer than the control group. The concentration of brain natriuretic peptide of the patients under different cardiac function status was better improved than the control group. The difference between them was significant ($P<0.05$) and has statistical significance. **Conclusion:** It is of great significance to use brain natriuretic peptide in patients with cardiovascular disease which can improve the treatment effect, reduce the readmission rate of patients, prolong the time of angina induced by exercise, improve the concentration of brain natriuretic peptide of the patients in different cardiac functional status and provide a outstanding basis for patients in clinical treatment of the disease.

Keywords: Brain natriuretic peptide; Clinical cardiovascular diseases; Application value

Cardiovascular disease refers to all circulation system diseases mainly occurred in the heart and blood vessels which can be divided into acute and chronic type. It usually happens associated with arteriosclerosis, and has similar etiology and nosogenesis [1-2]. It is a disease with a higher incidence at present and most of patients are quinquagenarian. But with the rapid pace of life and a heavy work burden, the disease group is becoming younger and younger [3]. Now we select 48 patients with cardiovascular disease who have been treated in our hospital from March 2015 to March 2016 to make control study. The research contents are as follows.

1 Data and Methods

1.1 General Data

Choose 48 cases of patients with cardiovascular disease treated in our hospital from March 2015 to March 2016 and then divide them into treatment group and control group according to the different treatment of drugs and with 24 cases in each group: male 15 cases, female 9 cases. They age from 45 to 89 years old with an average age of (65.4 + 18.6) years old, and their disease course ranges from 4 to 0.6 years with an average of(0.8 + 3.6) years. The treatment group is consisted of 13 males and 11 females with an age range of 46~88 years and the average age of (65.6 + 17.9) years and their disease course are 2-5 years with an average of (3.2 + 0.8) years. There is no significant difference in age, course of disease and gender between the two groups ($P>0.05$), so they are comparable.

1.2 Methods

First of all, two groups of patients are underwent ultrasonic CT examination, routine examination,

ambulatory blood pressure monitoring to identify the patient's disease type and severity[4]. The control group is treated with astragaloside: all patients are treated with conventional treatment first, and then treated with astragaloside. The treatment group is treated with brain natriuretic peptide, the same as the control group. All patients are treated with conventional treatment first, and then use the brain natriuretic peptide [5].

1.3 Efficacy evaluations

To compare two groups patients' treatment effect, readmission rate, and induced angina time in exercise, the concentration of brain natriuretic peptide in serum of patients under different cardiac function status. Curative effect is divided into effectiveness: the clinical symptoms of the patients disappear and all indexes tend to be normal; excellence: Patients' clinical symptoms disappear and each index is normal; in-validness: the clinical symptoms of the patients are not improved, and illness are aggravated. Total efficiency rate = effective rate + apparent efficiency rate; heart function can be divided into NYHA grade, NYHA grade, NYHA grade [6].

1.4 Statistical methods

The data of the two groups are analyzed and processed by SPSS11.0 software, and when $P<0.05$, it says the comparison difference of data results between the two groups is statistically significant. In results index, the induced time of angina pectoris by exercise and the concentration of brain natriuretic peptide in serum of patience under different cardiac function status are measurement data which are expressed by the mean ± standard deviation and the comparison of data results are tested by t. For results index of the treatment effect of patients and admission rate, they are tested by x2 [7] as enumeration data.

2 Results

2.1 Compare the treatment effect of the two groups of patients

The therapeutic effects of the two groups are improved, as showed in figure 1.

Table 1 The Therapeutic Effect of the Two Groups of Patients [n (%)]

Group	The Number of cases	Effectiveness	Excellence	In-validness	Total effective rate
Treatment Group	24	19 (79.16)	3 (12.25)	2 (8.33)	22 (91.66)
Control Group	24	12 (50.00)	4 (12.25)	8 (33.33)	16 (66.66)

Note: The treatment effect of the treatment group is better than that of the control group, and the difference between the two groups is significant ($P<0.05$) which is statistically significant.

2.2 Compare the re hospitalization rate between the two groups

Patients re hospitalized in the control group are 5, accounting for 20.8%; the treatment group is 1, accounting for 4.1%. The re hospitalization rate of the treatment group is lower than that of the control group, and the difference between the two groups is significant ($P<0.05$) which is statistically significant.

2.3 Compare the time of angina pectoris induced by exercise in the two groups

Angina pectoris occurred in both two groups after the medication. The detailed angina pectoris time of patients is shown in figure 2.

Table 2 The time of angina pectoris induced by exercise in the two groups [x ± s]

Group	The number of cases	The time of angina pectoris induced by exercise
Control group	24	169±65
Treatment Group	24	300±101

Note: The time of angina pectoris induced by exercise in the treatment group is longer than that in the control group, and the difference between the two groups is significant ($P<0.05$), which is statistically significant.

2.4 Compare the concentration of brain natriuretic peptide in serum of the two groups of patients with different cardiac function statues

The concentration of brain natriuretic peptide in serum of the two groups is improved under different cardiac function statues

Table 3 The concentration of brain natriuretic peptide in serum[x + s] of the two groups of patients under different cardiac function status[x±s]

Group	The number of cases	NYHA Ⅱ class	NYHA Ⅲ class	NYHA Ⅳ class
Control group	24	512.7±89.3	721.4±254.6	996.7±298.7
Treatment group	24	369.3±66.7	556.4±145.6	821.4±196.3

Note: The improvement of the concentration of brain natriuretic peptide of the treatment groups' patients under different cardiac function statues is better than that in the control group, and the difference between the two groups is significant (P<0.05), which is statistically significant.

3 Discussion

At present, people's living standard is improved continuously due to the vigorous development of China's economy. While the fast-paced life makes people neglect health. In addition, people with poor resistance, unreasonable diet, often eating binge violence and obesity are likely to get this kind of disease [8]. Cardiovascular disease includes hypertension, anxious pain, acute myocardial infarction, coronary heart disease, hyperlipemia, heart failure, arrhythmia, etc which will seriously threaten health of middle aged and elderly people [9].

Brain natriuretic peptide is a protein hormone drug with potassium sparing diuretic effect.It can dilate blood vessels and has good retraction effect for anti renin, angiotensin and Raas and also be used to against excessive blood volume burden, regulate blood pressure surge and endocrine system, improve heart function, restrain the activation of brain natriuretic peptide mechanism, reduce ventricular load, inhibit brain natriuretic peptide release and has good treatment and rehabilitation effect for patients with cardiovascular disease and improve their heart function, relieve the clinical symptoms and each index [10-11] .

In this study, the total effective rate of treatment effect in the treatment group is 91.66%, compared with the control group, the difference is statistically significant (P<0.05); the readmission rate is 4.1%, compared with the control group the difference is statistically significant (P<0.05); the time of angina pectoris induced by exercise (300 + 101)s and compared with the control group the difference is statistically significant (P<0.05); The concentration of brain natriuretic peptide in serum of the treatment group's patients under different cardiac function statues is significantly different from that in the control group(P<0.05).

In summary, brain natriuretic peptide is of great significance for patients with cardiovascular disease which can improve the treatment effect and reduce their readmission rate, prolong the time of induced angina in exercise, improve the concentration of brain natriuretic peptide in serum of the patients under different cardiac function statues, provide a outstanding basis for the patients in clinical treatment of the disease. It should be widely used in the clinic.

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