The effect of Shenmai injection on elderly patients with type 2 diabetes islet function and circulation state

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ABSTRACT

Objective: To study effect of Shenmai injection on elderly patients with type 2 diabetes islet function and circulation state. Methods: Between January 2011 and September 2014, 60 cases of elderly patients with type 2 diabetes were selected as the research object, and 60 patients according to random number table method were randomly divided into observation group and control group with 30 cases each. Control group: 30 cases were given conventional western medicine treatment; Observation group: 30 cases were given Shenmai injection treatment based on the control group. 1 week, 3 weeks before and after treatment C peptide and insulin secretion index (HOMA beta), insulin resistance index (HOMA IR) and glycosylated hemoglobin (HbA1c), input branch pipe diameter, output, branch pipe diameter, loop of blood vessel diameter, number of loop deformity, pipe loop integral, zhout state points, such as flow, total integral index were tested. Results: 3 weeks, 1 week after treatment, serum c-peptide, HOMA beta levels in the observation group were obviously higher than the same period in the control group, and serum HOMA IR, HbA1c levels were significantly lower than the control group during this period, and the difference was statistically significant ($P<0.05$); 3 weeks, 1 week after treatment, in treatment group output input branch pipe diameter, branch pipe diameter, loop blood vessel diameter were significantly higher than control group during this period, and the number of loop deformity significantly was lower than the control group during this period, and the difference was statistically significant ($P<0.05$); 3 weeks, 1 week after treatment, in treatment group pipe loop integral, zhout state, the flow integral and total integral were significantly lower than the control group during this period, and the difference was statistically significant ($P<0.05$). Conclusion: Using Shenmai injection in the treatment of type 2 diabetes, can effectively improve the function of pancreatic islet and microcirculation, thus reduce the related complications, and effectively improve disease condition and prognosis.

1. Introduction

Type 2 diabetes is characterized by high blood sugar metabolic disease, also for clinical common endocrine disease and senile chronic diseases[1,2]. In recent years, China's aging population is aggravating, and the incidence of elderly type 2 diabetes is rising, seriously affecting the patient's health and daily life[3,4]. Islet function and microcirculation function in patients with type 2 diabetes exists a certain degree of damage, which also is the important pathogenesis basis of common complications in type 2 diabetes[5,6]. So how to improve the islet function and microcirculation function in patients with type 2 diabetes is of great significance for the control and treatment of diabetes. This research adopts Shenmai injection treating elderly type 2 diabetes, in order to study the influence of Shenmai injection on islet function and circulation state elderly patients with type 2 diabetes.
2. Materials and methods

2.1. Clinical information

Between January 2011 and September 2014, 60 cases of Type 2 diabetes patients in our hospital were selected as the research object, which aged 61-80, with an average age of (64±4) year-old. 60 patients were randomly divided into observation group and control group with 30 cases each by random number table method. Observation group: 30 cases, control group based on the given injection treatment. There was no statistical significance between age, sex, course of the disease, body mass index in observation group, control group (P>0.05) (Table 1). This study has been approved by the ethics committee in our hospital, and the subjects were informed and have signed informed consent.

2.2. The inclusion and exclusion criteria

Inclusion criteria[3] in accordance with related disease diagnosis standard[3]. Within a 80 - year - old age; No malignant tumor; No serious kidney disease; Without autoimmune diseases; For nearly three months did not receive the anti-inflammatory, hormone and immune inhibitor treatment; Compliance; Informed consent.

Exclusion standard[3]. Bronchial asthma; Except for diabetes endocrine disease; Inflammatory bowel disease; Acute and chronic infections; Metabolic disease; Severe malnutrition; With severe mental illness; Chronic obstructive pulmonary disease; Has a history of drug abuse, alcohol; Don't cooperate with the clinical inspectors; Not finished with the visitor.

2.3. Methods

Two groups are 2 weeks treatment, compared two groups of islet function and microcirculation function index. Control group given conventional diabetes therapy: give diabetes diet, to control the blood sugar medicine, prevention of complications. Observation group in the control group on the basis of combined with injection, give injection 30 mL, add 250 mL of 0.9% saline intravenous drip, 1 time/day.

2.4. Specimens collection and detection

2.4.1. Specimens collection

Before treatment and 1 day, 3 days after treatment, serum C peptide, HOMA β, HOMA IR, HbA1c were detected by ELISA method, and kit was purchased from Shanghai genomics technology co., LTD, in strict accordance with the instruction.

The experimental results showed that 1 week, 3 weeks after treatment serum c-peptide, HOMA beta level of observation group was obviously higher than the same period in the control group, and serum HOMA IR, HbA1c level of observation group were significantly lower than the control group during this period, and the difference was statistically significant (P<0.05), which were shown in Table 2.

2.4. Statistics

SPSS 18.0 software was used for statistics. Measurement data was presented as (mean±SD), performing t test or variance analysis, and SNK-q inspection was used for groups comparison; P<0.05 means that difference was statistically significant.

3. Result

3.1. C peptide, HOMA β, HOMA IR, HbA1c levels of observation group, control group

The experimental results showed that 1 week, 3 weeks after treatment serum c-peptide, HOMA beta level of observation group was obviously higher than the same period in the control group, and serum HOMA IR, HbA1c level of observation group were significantly lower than the control group during this period, and the difference was statistically significant (P<0.05), which were shown in Table 2.

Note: Compared with before the treatment, *P<0.05; Compared with control group, †P<0.05.
3.2. Output input branch pipe diameter, branch pipe diameter, loop blood vessel diameter, number of loop deformity of observation group, control group

The experimental results showed that 1 week, 3 weeks after treatment output input branch pipe diameter, branch pipe diameter, loop blood vessel diameter of observation group was obviously higher than the same period in the control group, and the difference was statistically significant (P<0.05), which were shown in Table 3.

Table 3
Comparison of output input branch pipe diameter, branch pipe diameter, loop blood vessel diameter, number of loop deformity of observation group, control group (mean±SD).

<table>
<thead>
<tr>
<th>Groups</th>
<th>Time point</th>
<th>Observation group (n=30)</th>
<th>Control group (n=30)</th>
</tr>
</thead>
<tbody>
<tr>
<td>C peptide (ng/mL)</td>
<td>Before treatment</td>
<td>6.76±1.04</td>
<td>6.74±0.77</td>
</tr>
<tr>
<td></td>
<td>1 week after treatment</td>
<td>8.25±1.14</td>
<td>6.69±1.09</td>
</tr>
<tr>
<td></td>
<td>3 weeks after treatment</td>
<td>8.44±1.17</td>
<td>7.01±1.11</td>
</tr>
<tr>
<td>HOMA β</td>
<td>Before treatment</td>
<td>8.25±1.23</td>
<td>8.24±1.23</td>
</tr>
<tr>
<td></td>
<td>1 week after treatment</td>
<td>10.31±1.38</td>
<td>8.58±1.29</td>
</tr>
<tr>
<td></td>
<td>3 weeks after treatment</td>
<td>10.47±1.42</td>
<td>8.78±1.31</td>
</tr>
<tr>
<td>HOMA IR</td>
<td>Before treatment</td>
<td>14.57±1.81</td>
<td>14.57±1.81</td>
</tr>
<tr>
<td></td>
<td>1 week after treatment</td>
<td>17.35±2.07</td>
<td>15.01±1.92</td>
</tr>
<tr>
<td></td>
<td>3 weeks after treatment</td>
<td>18.24±2.12</td>
<td>15.77±1.98</td>
</tr>
<tr>
<td>HbA1c (%)</td>
<td>Before treatment</td>
<td>23.47±3.21</td>
<td>23.44±3.22</td>
</tr>
<tr>
<td></td>
<td>1 week after treatment</td>
<td>23.49±2.16</td>
<td>22.37±2.90</td>
</tr>
<tr>
<td></td>
<td>3 weeks after treatment</td>
<td>18.49±1.94</td>
<td>21.71±2.57</td>
</tr>
</tbody>
</table>

Note: Compared with before the treatment, *P<0.05; Compared with control group, **P<0.05.

4. Discussion

Type 2 diabetes mellitus is common endocrine system disease, and in recent years, along with the aging degree aggravating, its incidence has been raising trend, which bring heavy burden to patients, families and society[5-7]. Patients with type 2 diabetes may have diabetic foot, diabetic retinopathy, diabetic nephropathy and other severe complications, and severe cases can even cause damage, so to make a diagnosis and give treatment as soon as possible to control the disease patients and improve patients prognosis is of great significance[8-11]. In addition to complications caused by type 2 diabetes, patients may also appear islet function and microcirculation function damage, vascular complications associated with diabetes and pancreatic islet function and impaired microcirculation close[12-14]. How to improve the function of patients with pancreatic islet function and microcirculation of type 2 diabetes symptoms and disease control and improvement is of great significance and value, so the clinical evaluation of drug treatment effect of islet function in patients with type 2 diabetes mellitus and to evaluate microcirculation function[15,16]. This research adopts Shenmai injection treating elderly type 2 diabetes, in order to study the influence of Shenmai injection on islet function and circulation state elderly patients with type 2 diabetes.

Shenmai injection for clinical common proprietary Chinese medicine, has the effect of anti-inflammation and improve blood vessel function, and its security is higher, and the drug has been widely used in clinical practice[4]. Jin Gui-sheng reported that Shenmai injection treating ischemic stroke, which can effectively improve neural function in patients with, and can prevent the deterioration of neural function of patients[4]. In recent years, scholars have found that Shenmai used in the treatment of gynecological diseases also obtain the better curative effect. Liu Kai-yuan[6], found in the study, that Shenmai can relieve symptoms of diabetes, effectively improve the patients, and mild side effects. He Ming-kun[7], reported Shenmai injection can effectively improve the peripheral neuropathy in diabetic patients, and curative effect is satisfied. This research shows that, the treatment group 1 week, 3 weeks after treatment to observe diabetes patients serum c-peptide, HOMA beta, HOMA IR, HbA1c level obviously improve before the treatment, and improve the amplitude of the same period is better than the control group. This showed that Shenmai injection in addition to anti-inflammation and improve blood vessel function, also can improve the C peptide, HOMA indices such as beta,
HOMA IR, HbA1c, in patients with type 2 diabetes and improve the function of patients with insulin, increase in patients with type 2 diabetes blood glucose control and regulating function, improve the patient's condition.

This study focused on Shenmai injection in elderly with type 2 diabetes microcirculation index and functional improvement. This research showed that, the treatment group 1 week, 3 weeks after treatment output input branch pipe diameter, branch pipe diameter, loop blood vessel diameter were significantly higher than control group during this period, and the number of loop deformity significantly lower than the same period in the control group, and 1 week, 3 weeks after treatment pipe loop integral, zhou state, the flow integral and total integral were significantly lower than the same period in the control group. The study showed that Shenmai injection can improve the microcirculation indexes and microcirculation function in patients with type 2 diabetes, which can effectively relieve clinical symptoms of diabetes and condition reducing the complications related to diabetes.

Shortcoming of this research is that the cases of the group is less, so late it still needs to be more large-scale clinical research further in-depth discussion. Using Shenmai injection in the treatment of type 2 diabetes, can effectively improve the function of patients with pancreatic islet function and microcirculation, thus reducing the related complications, and effectively improving condition and prognosis.

References