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Research Article

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Study on treatment method of motor neuron disease based on Jiweiling injection

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ABSTRACT

Motor neutron disease is a chronic progressive neurodegenerative disease, which is difficult to be treated effectively, therefore it is necessary to find out an effective treatment method, the application of Jiweiling injection on it is studied in depth. Firstly, the main pharmaceutical treatment methods are discussed. Secondly, the experimental materials and methods are designed respectively, the two groups are used as researching objects, and the software SPSS is used to carry out the statistical analysis, results show that the Jiweiling injection can treat the motor neutron disease effectively.

Key words: Treatment Method; Motor Neuron Disease; Jiweiling Injection

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INTRODUCTION

Motor neuron disease is a chronic progressive neurodegenerative disease with unknown etiology of selective spinal cord anterior horn cells, the group of brain stem motor neurons, cortex pyramidal cells and fasciculi pyramidalis. The clinic features are that the symptoms and signs of the upper and lower damaged motor neurons coexist, which are manifested as different combination of amyasthenia, amyotrophia and pyramid sign, and the functions of sense perception and musculi sphincter are not affected. Motor neuron disease mainly concludes amyotrophic lateral sclerosis and spinal muscular atrophy. The former generally happen dispersedly, only 5% of patients have a family history, 50% of patients die 3-5 years after the onset of the disease the latter are common diseases in babies and children, most are hidden genetic, which is the main reason of infant death and severe childhood disability. The cause and pathogenesis of the motor neuron disease has not been known completely, and the morbidity is surging up. Therefore it is necessary to find out an effective treatment for the motor neuron disease [1-2].

The main pharmaceutical treatment methods

(1) Exciting Amino acid antagonist

Riluzole is a sole drug that is benefit for the motor neuron disease with the support of evidence-based medicine. Riluzole has the protective effect for the neutron, and can strength the muscle force, and prolong survival time of amyotrophic lateral sclerosis patient and put off open time of trachea, but it can not improve symptoms obviously and cure the disease, it can be suit for the patients with slight and medium symptoms. About 50% remedial examples accompany untoward effect, such as; incapable, abdominal pain nausea, anorexia, drowsiness and slight increasing of transaminase [3-5].

(2) Neurotrophic factor

The neurotrophic factor can protect the neutron through many mechanisms, and promote the surviving of motor neutron. For example, recombinant insulin-like growth factor may ease disease history of patients, but there is no evidence at present, therefore it is necessary to carry out random clinic experiments in further.

(3) Antioxidant
The antioxidant concludes large doses of B- carotene, vitamin E and nutritional agents of nerve cells and muscle such as adenosine cyelophosphate, citicoline and carnine. It may has a certain role of adjuvant therapy

(4) Shenmue injection
The Shenmue injection has been applying in treat the motor neuron disease, and 38 patients are divided into two group, which are observation group (20 cases) and control group (18 cases) respectively, the observation group is treated through intravenous driping Shenmue injection 250mL per day and complex treatment, and the control group is treated by complex treatment alone. The complex treatment concludes neurotrophic factors intravenous driping per day, oral adenosin and amino acid. Results show that the effect ratio of the observation group is 85%, and the effect ratio of control group is 66.7%, there is obvious difference between two groups, results show that the treatment effect of Shenmue injection combing with complex treatment is exact for treating the motor neuron disease, it can obtain obvious effect of improving the whole effect of this disease and function symptoms of nervous system[6].

The modern pharmacy has no specific treatment for the motor neuron disease, the medicine mentioned above can prolong the disease course of this disease, the symptoms of patients has no significant improvement, and generally the adverse reactions can happen, Jiweiling injection is a new medicine, it can be used to treat the motor neuron disease, and it can improve the ability of muscle growth, Increase the resistance and relieve clinical symptoms.

EXPERIMENTAL SECTION

Jiweiling injection has neuroprotective effect on normal motor neurons and Neurotoxicity motor neurons, which can promote the hyperplasia and differentiation of neural stem cell in vitro, there it is an effective medicine for treating motor neurons disease. The Jiweiling injection is developed based on advanced technology, the preparation technology is feasible, and the quality standard is first-class, curative effect and quality of the preparation can be ensured, toxicology results show that this drug can has wide developing view [7].

(1) General materials
75 patients with motor neutron disease are used to carry out the comparing experiment from 2010 to 2013, which can be divided into two groups randomly, that is treatment group and control group. The treatment group concludes 40 cases, and the control group concludes 35 cases. The basic situation of patients is shown in table 1.

Table 1 Basic situation of patients

Group	Treatment group	Control group
Male	22	20
Female	18	15
Age range	20-78	32-75
Mean value and variance	43.89 ± 0.25	47.12 ± 0.20
Disease course	Two months to three years	Two months to three years
Number of patients with muscular atrophy symptoms	16	15
Number of patients with amyotrophic lateral sclerosis	12	10
Number of patients with progressive bulbar paralysis	8	6
Number of Primary lateral sclerosis	4	4

The two groups have no obvious difference in sex, age, disease course and lesion type, which has comparability, therefore it has statistically.

(2) Experimental materials
The medicine concludes Jiweiling injection, 8ml per branch, and the per ml concludes 0.9g crude medicine, this medicine has the effect of supporting strength and promoting tissue regeneration. Some Jiweiling serial preparations are used in the experiment. The glucose injection with 5% concentration is used in this experiment, B12500ug adenosin is used. 2000U neurotrophic molecules and 250mL normal saline are also used in this experiment.

(3) Instruments
The instruments conclude image analysis system, microplate reader and automatic biochemical analyzer.

(4) Standards of fitting into and excluding cases
Standards of fitting into and excluding cases are shown in table 2.

Table 2 Standards of fitting into and excluding cases

Standards of fitting into case	Standard of excluding case
Onset is hide and being aggravating	CT or MRI inspection in laboratory
Main clinic features has blurred dysarthria, chokes coughs, dysphagia, masticatory atonia and so on.	
Electromyogram is neurogenic injury	

(5) Treatment method

The patients in treatment group are treated based on the Jiweiling injection. 50mL Jiweiling injection with glucose injection with 5% concentration are used to carry out intravenous drip. The patients in control group carry out an intravenous drip with Jiweiling injection per day, continuous drip 25 days is a course of treatment. After the single treatment course is over, a reprieve of two weeks is applied; the treatment of next treatment course can be confirmed according to recovery situation of patients. During the procession of treatment, the Jiweiling serial preparations can be used to treat the patients jointly according to the clinic symptoms of patients. Three kinds of iweiling serial preparations are used in this experiment [8].

The Jiweiling No.1 can treat the patients with the symptoms of masticatory muscle weakness and difficulty swallowing and eating.

The Jiweiling No.2 can treat the patients with limbs stiffness, spasm and tremors.

The Jiweiling No.3 can treat the patients with muscles atrophy, Limb support ability decline and moving difficult.

The intravenous drip treatment with 2000U neurotrophic molecules adding 250mL normal saline is use to treat the patients in control group, when intravenous drip treatment is carried out, oral 40mg B12500ug adenosin is combined to treat the patients together.

The intravenous drip treatment is carried out a time per day, and 25 days form a whole treatment course, a reprieve of five to seven days is applied after the single treatment course is over, the treatment of next course can be confirmed according to the recovery situation. Medicine treatment method is three times each day, and 30 days generate a treatment course.

(6) Observing method

The curative effect is counted after one month's treatment, and follow-up time is three years.

(7) Curative effect judgment

The curative effect is divided into five grades, which are shown in table 3.

Table 3 Curative effect judgment method

Grade of curative effect	Description
Excellence	Atrophic muscles are growing, the normal working and living ability obviously recovered.
Availability	Atrophic muscles grows on the previous period, the strength of the muscles has increased. The main symptoms ease, or the disease has the long-term stability
Invalid	The treatment of patients does not show any reaction, and the main symptoms are not improved, while they are worsened.

(8) Statistical analysis

The software SPSS is used to carry out the analysis, and the χ^2 and t are used to inspect the data materials.

The basic idea of calculating χ^2 is listed as follows:

(a) A denotes the observing frequencies of category, E denotes the expected frequency calculated based on H_0, the difference between A and E denotes residual.

(b) The residual denotes deviation degree of observation χ^2 and theory value of a category, the sum is calculated after the residual is squared.

(c) The sum is carried out after the square of residual divides by expected frequency, the difference between observing and expected frequency can be evaluated.

Steps (1) to (3) can obtain the normal χ^2 statistical quantity, the corresponding calculating formulation is shown as follows:

$$\chi^2 = \sum_{i=1}^{k} \frac{(A_i - np_i)^2}{np_i} \tag{1}$$

where A_i denotes the observing frequency of level i, n denotes the total frequency, p_i denotes the expected frequency of level i.

The basic theory of t inspection is listed as follows: firstly, the null hypothesis H_0 is supported, that is the samples have no obvious difference. Then the value of t is calculated using the current samples based on t distribution. Then the probability p is calculated accordingly, if $p \le \alpha$, then the original hypothesis is rejected, the two sample have obvious difference.

The t statistical quantity is expressed as follows:

$$t = \frac{\overline{X} - \mu}{\sqrt{\frac{S^2}{n}}} \tag{2}$$

where t statistical quantity satisfies the t distribution with n-1 freedom, μ denotes the whole mean value, $\frac{S^2}{n}$ denotes the variance.

RESULTS AND DISCUSSION

Through treatment, the treatment of the two groups has obvious difference $(P < 0.01)$, therefore it has statistical significance, and the statistical results are shown in table 4.

Table 4 Comparison of treatment effect between the two groups

Group	Treatment group				
	Number of cases	Excellence/%	Availability/%	Invalid/%	Total effect rate/%
Number of patients with muscular atrophy symptoms	16	54.26	35.82	9.92	90.08
Number of patients with amyotrophic lateral sclerosis	12	50.37	27.49	22.14	77.86
Number of patients with progressive bulbar paralysis	8	56.13	22.95	20.29	79.08
Number of Primary lateral sclerosis	4	68.22	8.93	22.85	77.15
Group	Treatment group				
	Number of cases	Excellence	Availability	Invalid	Total effect rate
Number of patients with muscular atrophy symptoms	16	0	18.94	-81.06	18.94
Number of patients with amyotrophic lateral sclerosis	12	0	15.26	-84.74	15.26
Number of patients with progressive bulbar paralysis	8	0	5.98	-94.02	5.98
Number of Primary lateral sclerosis	4	0	1.02	-98.98	1.02

The sign and clinic symptoms of the two groups has obvious difference $(P < 0.01)$, therefore it has also statistical significance, the statistical results are shown in table 5.

Table 5 Statistical results of sign and clinic symptoms for the two groups

Group	Treatment group	Control group	Value of T	Value of P
Eating cough	2.24±0.15	3.17±0.32	12.84	<0.01
Dysphagia	1.34±0.31	2.41±0.24	19.43	<0.01
Expiratory dyspnea	0.82±1.43	1.09±0.48	1.24	<0.01
Unclear articulation	1.46±2.03	3.06±2.11	3.18	>0.05
Tongue atrophy	3.17±1.47	5.21±2.73	3.21	<0.01
Arm muscle atrophy	2.46±0.29	3.67±1.77	4.33	<0.01
Leg muscle atrophy	2.47±1.38	3.19±1.30	3.47	

Motor neutron disease is degenerative disease of nervous system, and the main symptoms conclude amyotrophy, decreased muscle strength and fasciculation, during the later period the symptoms conclude expiratory dyspnea and dysphagia and other bulbar palsy symptoms. At present, the western medicine；can not confirm the reason of this disease, and there is no medicine with definite treatment effect in treating. The motor neutron disease belongs to the category of "Atrophy disease". The nosogenesis is discussed from the angle of eight extra-channel, the damage of it will cause the twelve meridians and the viscera of human body loss gas blood, the paralysis happened. The meridian line of the governor meridian of it locates in the spinal cord and the brain, the governor meridian deficiency and Qi Yang deficiency can promote the weakness of yangqi in the the whole body, the line position is inconvenienced particularly. The spinal cord and the brain losses the temperature and develops the disease. Ren channel is sea of yin channels, Chong Channel is the reservoir of twelve meridians, Yin essence of eight extra-channel is not enough, and eight pulse is empty, twelve the veins and the viscera suffer dystrophy. The Jiweiling injection reflect the treatment method of supporting the vitality and preventing the wither, which is an effective medicine for treating the motor neutron disease.

Jiweiling injection is made up of ginseng, pilose antler and herba cistanches. The ginseng can do tepidity, enter into five dirties, and supply promordial qi. The pilose antler can achieve sweet-warm, enter into liver and kidney, return eight extra-channel, spermatogenesis and benefit to blood, and supply yang of governor meridian. The herba cistanches can enter into kidney and pass through eight extra-channel, and supply yang benefit to essence. According to the modern pharmacy, the ginseng concludes many kinds of ginsenosides, and many kinds of amino acids, and many trace elements and organic acid, ； glucide and vitamin, it can improve the fight-or-flight response ability, and strengthen the immunity function of the machine body, and promote the synthetise of protein, RNA, DNA, improve the activity of RNA polymerase, then add the synthetise of RNA. It can also improve the ribosome of cytoplasm, and improve the synthetic ratio of serum proteins and the content of the r-globulin and protein, then it can add the weight of patient, and improve the disease resistance of the machine body, and promote the healthy of patients. Pilose antler can improve the working ability of the organism, and reduce fatigue, it has the good function of recovering the strong of the patients, and it has the function of promoting the hematopoiesis. It can speed the form of hemoglobin and erythrocyte. The herba cistanches can regulate the secretion, promote the metabolization, it can regulate the nucleic acid content of the organism with yin-yang deficiency, and activate the epinephros to release the cortical hormone, and improve the weight and muscle strength of human body. Therefore the Jiweiling injection has the obvious protecting effect for motor neutron, and promote the；differentiation of the neural stem cell and reduce the concentration of calcium ion in the neural stem cell.

CONCLUSION

The motor neutron disease is a stubborn disease in the world, the treating effect of Jiweiling injection on it has been studied through statistical analysis, and results show that this medicine can obtain good treatment effect, it has wide application view.

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