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Analysis of the Effectiveness of Physical Rehabilitation in Treating Patients with Neck, Shoulder, Waist and Leg Pain

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Abstract: *Objective:* To explore the application value of physical rehabilitation programs in the treatment of patients with neck, shoulder, waist and leg pain. *Methods:* 80 patients were studied, all diagnosed with neck, shoulder, waist and leg pain after admission. After being divided into groups according to the odd-even number method, 40 cases were assigned to each group. The selection time of the two groups started in January 2025 and ended in December 2025. During the treatment phase, conventional Western medicine was used in the control group and a physical rehabilitation program was used in the experimental group. The final effect was evaluated and compared, including: VAS score (visual analogue scale for pain), clinical efficacy and quality of life in patients with neck, shoulder, waist and leg pain. *Results:* (1) After statistics of VAS scores of patients with neck, shoulder, waist and leg pain, the difference before treatment was small, $P > 0.05$; after treatment, both groups improved, and the experimental group (3.18 ± 0.47 points) was at a lower level, $P < 0.05$; (2) In terms of total effective rate, conventional Western medicine treatment, The statistical data of physical rehabilitation treatment were: 80.00% (32/40), 95.00% (38/40). The comparison results showed that the experimental group was higher, $P < 0.05$; (3) In the quality of life scores, the patients with neck, shoulder, waist and leg pain in the experimental group were higher, $P < 0.05$. *Conclusion:* In the clinical treatment stage, the physical rehabilitation program is effective. For patients with neck, shoulder, waist and leg pain, it can significantly improve pain symptoms and other disease symptoms, and promote an improvement in the total effectiveness. At the same time, this program can also better protect the best quality of life for patients, and has significant promotional value.

Keywords: Patients with neck, shoulder, waist and leg pain; Physical rehabilitation treatment; VAS score; Total effective rate; Quality of life score

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1. Introduction

Neck, shoulder, waist and leg pain have a high clinical incidence. The most common groups are: middle-aged patients and elderly patients. After a comprehensive analysis, it is found that the typical symptoms of this group include: pain, swelling, limited activity in the neck and shoulders, upper limbs, lower back and lower limbs. In the continuous progression stage, the patient's various discomforts will further worsen, which will seriously affect the patient's quality of life and physical and mental health [1]. During the treatment process, with the continuous development of national medical technology,

there are relatively many suitable solutions for patients with neck, shoulder, waist and leg pain. Among them, although drug intervention can effectively alleviate the pain, patients are prone to dependence and adverse reactions, and its safety factor is low [2]; while physical rehabilitation therapy can effectively stimulate the patient's affected parts through physical factors, thereby improving blood circulation and promoting recovery [3]. In view of this, this article will analyze the patients with neck, shoulder, waist and leg pain who visited our hospital from January 2025 to December 2025, and explore the application value of conventional treatment (control group) and physical rehabilitation treatment (experimental group) after random grouping, as follows.

2. Clinical data and methods

2.1. General information

After approval by the hospital's ethics department, this activity was launched. After the investigation, the research time was January 2025 to December 2025. The specific composition of the reference objects: patients with neck, shoulder, waist and leg pain. During the clinical treatment stage, all patients (n = 80 cases) need to be grouped in time. The details are as follows. Control group: 40 cases in total. After counting the number of men and women, the proportion is 20:20. In terms of age, the upper and lower limits are 78 and 51 years old, and the average value is (64.55 ± 1.39) years old. After counting the course of the disease, the shortest and longest times are 0.5 and 1.7 years, and the average time is (1.08 ± 0.23) years; Experimental group: 40 cases in total. After counting the number of men and women, the proportion was 22 cases: 18 cases. In terms of age, the upper and lower limits were 76 and 52 years old, and the average value was (64.08 ± 1.51) years old. After counting the course of the disease, the shortest and longest times were 0.8 and 1.6 years, and the average time was (1.17 ± 0.13) years. The above research information (gender, age, disease duration) is balanced and comparable. This study has high feasibility, $P > 0.05$.

Inclusion criteria: (1) The in-hospital examination results of the patients were analyzed, and all patients were diagnosed with "neck, shoulder, waist and leg pain", and the personal information was relatively complete; (2) After drug treatment, the patients with neck, shoulder, waist and leg pain had no allergies; (3) After professionals introduced the research purpose and content popularly, the patients and their families expressed full understanding, high recognition of the internal regulations, and voluntarily signed relevant agreements.

Exclusion criteria: (1) Patients with neck, shoulder, waist, and leg pain who have short-term or long-term mental illnesses and have lost basic communication skills; (2) Patients with malignant tumor disease; (3) Patients with neck, shoulder, waist, and leg pain who have serious organic lesions in the examination results of important organs; (4) Patients with poor mental status and severe resistance to various examinations and treatments; (5) Patients with neck, shoulder, waist, and leg pain who dropped out of the participation midway after considering the influence of multiple factors.

2.2. Method

Control group: Provide conventional Western medicine treatment. The specific type is mainly ibuprofen sustained-release capsules. For patients with neck, shoulder, waist and leg pain, the oral route can be used for administration. The single dosage is 1 capsule, twice a day. The observation time is: 14 days. The drug information is: Ibuprofen sustained-release capsules, produced by Sino-US Tianjin SmithKline Pharmaceutical Co., Ltd., national drug approval number H10900089, product specifications: 0.3 g × 20 capsules.

Experimental group: Provide a physical rehabilitation treatment plan, the main contents are: (1) Medium frequency electrotherapy. In clinical practice, the instrument involved is a computerized medium-frequency electrotherapy instrument, model: CM2000A, and the pulse current is adjusted to 1000–10000Hz; during specific operations, the patient can be adjusted to a comfortable position. Secondly, the electrode pads of the instrument are correctly pasted on the pain points and surrounding acupoints to treat the patient, 20 minutes/time, once/day; (2) Acupuncture treatment. For the analysis of patients with neck, shoulder, waist and leg pain, the acupuncture points selected for clinical intervention are: Neck Jiaji,

Jianjing, Shenshu, Yaoyangguan, Huantiao, Weizhong, and Zusanli. Secondly, staff need to disinfect them correctly and use disposable sterile acupuncture Insert the needle, and then perform acupuncture treatment. During this process, the main method is to strengthen and relieve the pain. The patient is asked about his or her feelings on time. The needle is retained when there is soreness, numbness, swelling, and pain. The specific time is: 20 minutes, once a day; (3) Traditional Chinese medicine fumigation. After analyzing the indications of patients with neck, shoulder, waist and leg pain, the specific types of traditional Chinese medicine were determined, including: 20 g each of safflower, kudzu root, and *Ligusticum chuanxiong*; 15 g each of papaya, angelica, Qianghuo, Bupleurum, and Duhuo; 10 g each of Fangfeng, Aracenia, and *Zanthoxylum bungeanum*. All the medicines were mixed and put into the traditional Chinese medicine fumigation. In the steaming instrument, add an appropriate amount of water until the instrument generates steam, and instruct the patient to fully expose the painful area and perform fumigation. During this process, keep 50 cm between the patient's skin and the steam outlet to avoid burns, 25 min/time, once/day. (4) Rehabilitation training. The principle of step-by-step will be strictly implemented. During the initial treatment process, the staff can provide basic suggestions, such as left and right rotation of the neck, shoulder circumference exercises, quadriceps isometric contraction training, etc., 15 minutes/time, once/day. As the patient's condition gradually improves, the staff can advise the patient on daily Increase the training time, and then recommend the patient to join back stretching, straight leg raising and slow walking training, 30 minutes each time, 2 times a day if conditions permit; however, the staff needs to remind the patient to strictly control the daily time and intensity based on self-tolerance, and not to rush for quick success to avoid other accidental injuries. Observation time: 14th.

2.3. Evaluation indicators

(1) Among patients with neck, shoulder, waist and leg pain, compare the differences in VAS scores (visual analog scale for pain) between the two groups before and after the intervention. The total score is 10. The level of the measured data is inversely proportional to the patient's pain level;

(2) To compare the clinical efficacy, the setting levels and judgment criteria are [4]: Significantly effective level: The patient's neck, shoulder, hip, and knee joint functions have returned to normal, and disease symptoms have basically disappeared; Generally effective level: The patient's pain symptoms and other discomfort symptoms have significantly improved, and limb functions have significantly improved; Ineffective level: The patient's indications have not changed in all aspects, and there are signs of aggravation.

(3) Compare the quality of life scores. The specific dimensions include: social function, psychological function, physical function, and material life; the total score of each item is 100. The measured data are directly proportional to the quality of life of patients with neck, shoulder, waist, and leg pain.

2.4. Statistical analysis

After sorting out the measurement data and counting data obtained in this study, they were analyzed under SPSS 25.0 software. Among them, the VAS score and quality of life score of patients with neck, shoulder, waist and leg pain were tested by the t-test, and the clinical efficacy was tested by the chi-square test. The above information is represented in the form of mean ± standard deviation (SD), (%), and $P < 0.05$ indicates that the difference is significant.

3. Results

3.1. VAS score

As shown in **Table 1**, there was no difference before treatment, $P > 0.05$; after treatment, the experimental group was at a lower level, $P < 0.05$.

Table 1. Comparison of VAS scores between the control group and the experimental group
mean ± standard deviation (SD)

Group	Before treatment (points)	After treatment (points)
Control group (n = 40 cases)	7.03 ± 1.24	5.41 ± 1.06
Experimental group (n = 40 cases)	7.05 ± 1.19	3.18 ± 0.47
t	0.074	12.163
P	0.942	0.000

3.2. Clinical efficacy

As shown in **Table 2**, the total effective rate of treatment for patients with neck, shoulder, waist and leg pain was higher in the experimental group, $P < 0.05$.

Table 2. Comparison of clinical efficacy between the control group and the experimental group (%)

Group	Significantly effective	Generally effective	Invalid	Total effectiveness (%)
Control group (n = 40 cases)	18(45.00)	14(35.00)	8(20.00)	32(80.00)
Experimental group (n = 40 cases)	21(52.50)	17(42.50)	2(5.00)	38(95.00)
χ^2	-	-	-	4.114
P	-	-	-	0.043

3.3. Quality of life

As shown in **Table 3**, the scores of the experimental group were at a higher level, $P < 0.05$.

Table 3. Comparison of quality of life scores between the control group and the experimental group (mean ± SD, points)

Group	Social function	Psychological function	Physical function	Material life
Control group (n = 40 cases)	78.59 ± 4.56	79.63 ± 4.12	79.95 ± 4.33	78.64 ± 4.05
Experimental group (n = 40 cases)	88.17 ± 3.94	90.05 ± 2.13	89.87 ± 2.44	88.45 ± 3.12
t	10.054	14.209	12.623	12.136
P	0.000	0.000	0.000	0.000

4. Discussions

After analysis of neck, shoulder, waist and leg pain, the causative factors are relatively complex. The core indicators include: cervical spondylosis, lumbar disc herniation, osteoporosis, rheumatoid arthritis, muscle strain, metabolic diseases, etc. After clinical occurrence, it will cause great trouble to the patient's normal life and have a serious negative impact on the patient's physical and mental health [5].

In the research results of this article, the observation indicators show:

(1) Before clinical treatment, the comparison results of VAS scores showed that there was no difference between the two groups, $P > 0.05$; after treatment, the control group was (5.41 ± 1.06 points) and the experimental group was (3.18 ± 0.47 points). It can be seen that the latter was lower, $P < 0.05$;

(2) After statistics of the total effective rate, the data of patients with neck, shoulder, waist and leg pain in the experimental group (95.00%, 38/40) were higher than those in the control group (80.00%, 32/40), $P < 0.05$;

(3) In terms of quality of life, there was a significant difference in the data of patients with neck, shoulder, waist and leg pain in the two groups, and the experimental group was at a higher level, $P < 0.05$. The specific analysis is as follows:

In the treatment of neck, shoulder, waist and leg pain, conventional Western medicine is ibuprofen sustained-release capsules, which have obvious anti-inflammatory and analgesic effects.

However, the safety factor is low when taken for a long time, and the overall effect is not good. During physical rehabilitation treatment, medium-frequency electrotherapy can be used to intervene with professional medical equipment, which can effectively stimulate the patient's painful parts and regulate the patient's muscle contraction ability, thereby improving muscle spasm and alleviating discomfort [6]. At the same time, acupuncture intervention in traditional Chinese medicine can better dredge the meridians and achieve the goal of "normalizing without pain"; and during the fumigation process of traditional Chinese medicine, safflower can activate blood and regulate Menstruation, improve microcirculation, *Ligusticum chuanxiong* dispels wind and relieves pain, promotes Qi and activates blood circulation, Fangfeng dispels wind and cold, and Aracenia dispels wind and relieves spasm. In clinical application, it can be supplemented with papaya, Bupleurum and other drugs for intervention, thereby better helping patients reconcile qi and blood and regulate organ function; and during this intervention, the warming effect of steam can further promote the absorption of inflammatory factors in the patient's body as quickly as possible, thereby alleviating the patient's pain symptoms [7]. In addition, step-by-step rehabilitation training measures can also better improve the patient's body metabolism, better improve the patient's joint functions, increase joint flexibility, enhance muscle strength, and consolidate the treatment effect [8]; the combination of the above programs has obvious synergy, and can better alleviate discomfort symptoms and shorten the recovery process for patients with neck, shoulder, waist, and leg pain. However, in clinical practice, staff still need to pay attention to patients' psychological needs, patiently comfort and encourage them, briefly introduce disease knowledge and the necessity of rehabilitation treatment, help patients correctly understand relevant information, improve cooperation, and better ensure patient prognosis and efficacy.

5. Conclusion

In summary, in the treatment stage of neck, shoulder, waist and leg pain, it is of great significance to carry out physical rehabilitation programs, which specifically include: medium frequency electrotherapy, acupuncture intervention, traditional Chinese medicine fumigation and rehabilitation training sessions. The combination of the above measures can help reduce patients' pain symptoms and other discomforts, and can improve the overall effectiveness. At the same time, this measure can also ensure the best quality of life for patients, and is worthy of further clinical promotion.

Disclosure statement

The author declares no conflict of interest.

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