A clinical study on the combined therapy of methotrexate and immuno adsorption in the treatment of rheumatoid arthritis disease

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Abstract: Objective of the present work was to study the effect and significance of the combined therapy of methotrexate and immune adsorption in the treatment of rheumatoid arthritis disease. 56 patients with rheumatoid arthritis disease who have received treatment in "The Affiliated Hospital of Qingdao University, Qingdao, Shandong, China" during the period from May, 2016 to May, 2017 were selected as study objects and were randomized into control group and experimental group according to different therapies. Control group was given conventional therapy while experimental group was treated with the combined therapy of methotrexate and immune adsorption with 28 patients in each group. After a period of time, clinical symptoms, the experimental index, treatment effectiveness and the occurrence rate of adverse reactions were all compared between the two groups. Results revealed that the clinical symptoms and the experimental index of experimental group were less than those of control group and the occurrence rate of adverse reactions in experimental group was lower than that in control group. Additionally, the effective rate of experimental group was higher than that of control group and statistically significant difference was observed and revealed that the combined therapy of methotrexate and immune adsorption in the treatment of rheumatoid arthritis disease had vital significance in alleviating related symptoms, lowering adverse reactions occurrence rate and improving treatment effectiveness, being worthy of clinical application and promotion.

Keywords: Methotrexate, rheumatoid arthritis, Treatment effect.

INTRODUCTION

Rheumatoid arthritis disease is a common chronic disease nowadays, which frequently occurs in women aged 40 to 60 (Yin *et al*., 2013). Because of limited medical knowledge, the cause to this disease is still in further study (Yan and Wang, 2013). Frequent inflammation on small joints is one of the disease symptoms and joint deformity occurs when situation gets severe. Morning stiffness, joint involvement and extra-articular manifestations are all clinical features of rheumatoid arthritis. Morning stiffness refers to the situation in which patients have inconvenience in joint motion when they get up; Extra-articular manifestations include fever, rheumatoid arthritis, cardiac involvements, respiratory system involvement, renal dysfunction and so on (Guo *et al*., 2014). Under normal circumstances, applying anti-inflammatory drugs and taking anti-rheumatic medicine are conducive to alleviating the disease. However, when patient's condition shows no relief after several months of medication, it means the disease has evolved to the stage of "incurable" (Guo *et al*., 2015; Guo *et al*., 2014). Under such a background, how to use correct treatment to alleviate disease and bring out prominent treatment effect as well as better life quality are the key research topics focused by related experts. Among all study results, the combined therapy of methotrexate and immune adsorption is a relatively common treatment, and in order to prove its treatment effect, the author selected 56 patients with rheumatoid arthritis disease who had received treatment in "The Affiliated Hospital of Qingdao University, Qingdao, Shandong" from the period May, 2016 to May, 2017 as study objects.

MATERIALS AND METHODS

General data

56 patients with rheumatoid arthritis disease were selected as study objects and were randomized into control group and experimental group according to different therapies. Control group was given conventional therapy while experimental group was treated with the combined therapy of methotrexate and immune adsorption. Each group had 28 patients. In control group, 12 were male and 16 were female, with an age range from 23 to 76 and an average age of (43.58 ± 12.31) years. Among the patients in experimental group, 15 were male and 13 were female, with an age range from 22 to 79 and an average age of (44.23 ± 14.20) years. The average course of disease in control group was (6.76 ± 4.59) years while in experimental group it was (6.23 ± 1.39) years. Difference in patient's age, gender, course of disease and other aspects had few effects on the experimental results, which could be omitted.

Methods

Patients in experimental group were injected methotrexate reagent. The dose was 7.5mg in the first week and 10mg in the second week (Hagar *et al*., 2016). In the meantime, patients were given close watch. If the disease had not been relieved, the drug dose was to be added to 15mg (Venkata *et al*., 2016). At the same time, immune adsorption was performed on patients in experimental group through their arterial blood flow. The adsorption process was passed nuclear antigen. Methotrexate reagent was brought back to patients through elbow vein after the adsorption. The adsorption frequency was two times a day and altogether three times in six days. However, patients in control group were only treated with Methotrexate reagent and the dose was ensured 10-15mg every week (Muhammad, 2014). During treatment, patients in both groups was given an anti-inflammatory agent as adjuvant therapy. The total time of clinical features observation was 12 weeks.

Research index

Patient's morning stiffness time, tender joint counts, swollen joint counts, power of gripping, blood sedimentation index and core protein reaction index were all compared before and after the experiment. In addition, adverse reactions such as nausea and vomiting, skin mucosa, white blood cell and ALT were also compared before and after the experiment. Among all indicators, improvement of four of indicators represented prominent treatment effect, improvement of three indicators represented effective treatment, improvement of less than three indicators represented invalid treatment and total treatment effective rate was compared between the two groups.

Inclusion and exclusion criteria was adopted as per previous literature. This study was approved ethically from the institutional ethical committee of The Affiliated Hospital of Qingdao University, Qingdao, Shandong. Ref No.1356/ERB/2016.

STATISTICAL ANALYSIS

Data were counted and analyzed by statistical software SPSS 18.0, and measurement data were examined by t and enumeration data were examined by X2. There was a significant discrepancy in results when P<0.05, being of statistical value.

RESULTS

Comparison of clinical symptoms

After the experiment, the first three indicators of the experimental group were lower than that of the control group and the discrepancy had statistical significance (P<0.05) but the power of gripping in the two groups showed no obvious discrepancy (P<0.05). See as table 1

Comparison of laboratory index

After the experiment, the blood sedimentation index and core protein reaction index of the experimental group were lower than that of the control group, the differences of examine results had statistical value (P<0.05) as shown in table 2.

Comparison of adverse reactions

After the experiment, the results showed that the adverse reactions occurrence rate was 39.29% in control group, while in the experimental group it was 28.57%. there was no obvious statistical discrepancy in the experimental results (P>0.05 as shown in table 3.

Comparison of treatment effective rate

After the experiment, the results showed that the total treatment effectiveness rate of control group was 71.43% and the rate of experimental group was 92.86%. Discrepancy of the results showed statistical significance (P<0.05) as shown in table 4.

DISCUSSION

Arthrocele and arthromeningitis are the main features of rheumatoid arthritis disease. Study nowadays shows that this disease is probably caused by low immunity. Because related reasons for this disease is not clear yet, the treatment is difficult and misdiagnose and therapeutic error would appear when the treatment is not carried out correctly (Ildiko *et al*., 2016; Rafaela *et al*., 2016). As for rheumatoid arthritis disease, adopting single therapy cannot help achieve satisfactory treatment results. Therefore, related experts all perform the treatment through multiple therapies (Chen-Chung *et al*., 2016). Methotrexate therapy in the treatment of rheumatoid arthritis disease has already been widely applied in all hospitals, however, same prominent treatment effect cannot be achieved because of the difference in patients' disease course and severity degree. Immuno adsorption is a rising therapy at present. Through performing relevant immunoreaction, this therapy can wipe out related pathogenic factors (Won *et al*., 2016; Siddharat *et al*. m 2016; Askin *et al*., 2016; Cohen *et al*., 2016). Combing the above two therapies in the treatment of rheumatoid arthritis disease is a great breakthrough in medical industry. Information shows that methotrexate has certain inhibiting effect on the formation of purine and can alleviate the process of neutrophils proliferation so as to achieve the goal of reducing inflammatory cell proliferation. Meanwhile, immune adsorption therapy can dilute related immune complexes and as time passes, synovial inflammation would gradually disappear and finally rheumatoid arthritis disease can be cured (Askin *et al*., 2016).

According to the experiment results, all clinical symptoms and laboratory indexes of the experimental group occured less than that in control group. The adverse reactions occurrence rate in experimental group was lower than that

Table 1: Comparison of clinical symptoms between the two groups

Group	N	Morning Stiffness Time (Min)	Tender Joint Counts	Swollen Joint Counts	Power of Gripping (MmHg)
Control	28	66.32±5.24	9.42±5.25	6.39±6.25	9.98±4.21
Experimental	28	50.36±5.44	6.33±5.14	4.55±6.03	9.41±7.21
T Value	---	4.1632	3.1121	2.1681	0.5321
P Value	---	<0.01	<0.01	<0.05	>0.05

Table 2: Comparison of laboratory index between the two groups

Group	N	Blood Sedimentation Index (Mm/H)	Core Protein Reaction Index (Mm/H)
Control	28	49.62±3.62	10.32±5.32
Experimental	28	40.45±1.02	7.25±4.31
T Value		2.1341	2.5352
P Value		<0.05	<0.05

Table 3: Comparison of adverse reactions between the two groups

Group	Nausea & Vomiting	Skin Mucosa	Decrease in White Blood Cells	ALT Increase	Adverse Reactions Occurrence Rate
Control (28)	4	2	2	3	39.29% (11)
Experimental (28)	3	2	2	1	28.57% (8)
X2 Value	0.6932				
P Value	0.4050				

Table 4: Comparison of treatment effective rate between the two groups

Group	N	Prominent Effects	Effective Results	Invalid	Total Effective Rate%
Control	28	6	14	8	71.43
Experimental	28	11	15	2	92.86
X2 Value	4.3250				
P Value	0.0380				

in control group and the total experimental effective rate was higher than that in control group.

CONCLUSION

The results show that discrepancy between the experimental outcomes was statistically significant, indicating that the combined therapy of immune adsorption and methotrexate had a vital realistic significance in the treatment of rheumatoid arthritis disease and is worthy of clinical application and promotion Considering patient's real conditions, medical staff should select therapy carefully while performing treatment to avoid causing any irreparable loss to patient's health. As treatment course prolongs, drug dose should also be reduced to avoid patient's dependence on the drug.

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