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Analysis of the Rationality and Management Strategies of Traditional Chinese Medicine Formula Granule Prescriptions

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Abstract: *Objective*: To analyze the application value of prescription management of traditional Chinese medicine formula granules in reducing unreasonable prescriptions. *Methods*: From January to June 2024, before improving prescription management strategies, 118 patients treated with traditional Chinese medicine formula granules were included in the control group. From July to December 2024, after improving prescription management strategies, 118 patients treated with traditional Chinese medicine formula granules were included in the observation group. The unqualified prescription rate, incidence of adverse reactions, complaint rate, and satisfaction were compared. *Results*: The unqualified prescription rate of traditional Chinese medicine formula granules in the observation group was lower than that in the control group ($P < 0.05$); the incidence of adverse reactions and patient complaint rate of traditional Chinese medicine formula granules in the observation group were lower than those in the control group ($P < 0.05$); the satisfaction of traditional Chinese medicine formula granules in the observation group was higher than that in the control group ($P < 0.05$). *Conclusion*: Improving the prescription management strategy of traditional Chinese medicine formula granules can reduce the unqualified prescription rate and the incidence of adverse drug reactions, reduce patient complaints, and is conducive to improving patient satisfaction.

Keywords: Traditional Chinese medicine formula granules; Prescription management strategies of traditional Chinese medicine; Rationality of traditional Chinese medicine prescriptions

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1. Introduction

Traditional Chinese medicine has a long history and wide application in China. TCM syndrome differentiation and treatment can flexibly adjust prescriptions based on patients' physical constitution and disease syndromes, achieving syndrome differentiation and medication, as well as addition and subtraction according to the prescription. However, with the acceleration of modern social rhythms, the disadvantages of traditional Chinese

medicinal decoction, such as time-consuming cooking and inconvenience in carrying, have gradually become apparent. With the continuous enrichment of traditional Chinese medicine formulations, the technology of traditional Chinese medicine formula granules has gradually matured, which can compensate for the defects of traditional Chinese medicinal decoction that is inconvenient to cook and difficult to store. It can also retain the medicinal properties of Chinese herbal medicines to the greatest extent, precisely control the dosage, and make it more convenient for patients to take. With the wide application of traditional Chinese medicine formula granules, the rationality of their prescriptions has also attracted much attention.

Therefore, hospitals should pay attention to the management of prescriptions for traditional Chinese medicine formula granules, improve prescription management strategies, and strengthen supervision to ensure the rational use of traditional Chinese medicine formula granules and reduce medical disputes [1]. During the implementation of prescription management strategies for traditional Chinese medicine formula granules, the prescription review system should be implemented to review and notify penalties for unqualified prescriptions. The prescription is not only a proof of medication for patients but also a basis for pharmacists to dispense medicines. It has legal effects and economic responsibilities. Standardized and reasonable prescriptions can not only ensure better efficacy but also reduce the incidence of adverse reactions. Based on this, this article explores the application value of improving traditional Chinese medicine prescription management strategies using patients treated with traditional Chinese medicine formula granules from January to December 2024 as samples.

2. Materials and methods

2.1. Materials

One hundred and eighteen patients treated with traditional Chinese medicine formula granules from January to June 2024 are randomly selected and included in the control group, and 118 patients treated with traditional Chinese medicine formula granules from July to December 2024 are also randomly selected and included in the observation group. The data of patients treated with traditional Chinese medicine formula granules in the observation group are compared with those in the control group ($P > 0.05$), as shown in **Table 1**.

Table 1. Analysis of basic information of patients treated with traditional Chinese medicine formula granules

Group	n	Gender (%)		Age (years)		BMI (kg/m²)	
		Male	Female	Range	Mean±SD	Range	Mean±SD
Observation group	118	71 (60.17)	47 (39.83)	36-41	38.41±1.11	18-32	24.61±1.48
Control group	118	70 (59.32)	48 (40.68)	36–42	38.39 ± 1.12	18–33	24.59 ± 1.51
χ^2/t	-	0.0176		0.1378		0.1028	
P-value	-	0.8944		0.8905		0.9182	

2.2. Inclusion and exclusion criteria

2.2.1. Inclusion criteria

(1) Consistent with the treatment standards for the clinical application of traditional Chinese medicine formula granules in the "International Expert Consensus on the Clinical Application of Traditional Chinese Medicine Formula Granules" [2]

(2) Signed informed consent

(3) Cooperated with the administration of traditional Chinese medicine formula granules

2.2.2. Exclusion criteria

(1) Patients with kidney tumor diseases
(2) Patients with hypertensive nephropathy
(3) Critically ill patients

2.3. Methods

2.3.1. Observation group

(1) Improving the system: Combining the guidelines for the use of traditional Chinese medicine, hospital prescription review norms, and clinical medication practices, improve the prescription management system that aligns with the daily work of the hospital.
(2) Reviewing and reporting unreasonable prescriptions: During the improvement of traditional Chinese medicine formula granule prescription management strategies, pharmacists should implement prescription review work according to departmental rules and regulations, strictly inspect prescriptions for traditional Chinese medicine formula granules, and focus on analyzing whether there are compatibility contraindications and repeated medication issues. If unreasonable prescriptions are found, pharmacists should immediately communicate with the prescribing physician to avoid possible adverse effects; for physicians who refuse to communicate or cooperate, unreasonable prescriptions should be reported immediately.
(3) Syndrome differentiation and treatment: During the management of traditional Chinese medicine formula granule prescriptions, pharmacists should understand patients' past medication history and allergy history, make dialectical adjustments to traditional Chinese medicine prescriptions based on the illness and constitution, and provide reasonable suggestions, including timing of administration, dosage, and medication methods. Additionally, as some patients treated with traditional Chinese medicine formula granules often take more than one medication, a comprehensive analysis of different drug indications and contraindications is necessary to avoid repeated administration or compatibility contraindications.
(4) Strengthening training: Conduct training for clinicians and pharmacists, disseminate knowledge of traditional Chinese medicine compatibility and dialectical administration, and strengthen medical staff's understanding of traditional Chinese medicine theoretical knowledge; organize regular case seminars to discuss unqualified prescriptions and standardize the format of prescriptions written by doctors. Analyze typical cases of unreasonable prescriptions, and provide targeted training for pharmacists to improve their ability to review prescriptions.
(5) Enhancing education: Patiently educate patients, disseminate information on drug contraindications, potential risks during administration, and precautions, and patiently answer patients' concerns about traditional Chinese medicine formula granules to ensure correct medication methods and dosages.
(6) Introducing an information management system: Create an in-hospital traditional Chinese medicine compatibility database, add modules for syndrome differentiation and treatment, drug dosage reminders, and compatibility contraindications. After entering patient information into the database, the patient's prescription will automatically appear, enabling online review of prescription rationality. Only prescriptions that pass the review can enter the dispensing status. Electronic medical record systems are created for all patients receiving treatment with traditional Chinese medicine formula granules to monitor

and record adverse drug reactions in a timely manner, and to quickly review and address drug side effects. Additionally, during the improvement of traditional Chinese medicine formula granule management strategies, big data analysis techniques can be introduced to summarize and analyze the types and causes of common unreasonable prescriptions, continuously improving the hospital's management strategies for traditional Chinese medicine formula granule prescriptions.

(7) Implementing reward and punishment measures: Regularly conduct random reviews of traditional Chinese medicine formula granule prescriptions, investigate unqualified prescriptions, deeply analyze influencing factors, discuss and propose improvement measures. If a physician frequently has unqualified prescriptions, they should be interviewed for rectification and subjected to performance penalties. A complaint hotline should be established for patients treated with traditional Chinese medicine formula granules to immediately investigate and address any prescription-related complaints.

2.3.2. Control group

Physicians directly administered medications based on prescriptions without implementing prescription management strategies.

2.4. Statistical analysis

Data are processed using SPSS 23.0. Count indicators are tested using the chi-square test and recorded as percentages (%), while measurement indicators are tested using the t-test and recorded as mean ± standard deviation (±s). Statistical differences are considered significant at $P < 0.05$.

3. Results

3.1. Indices of unqualified prescriptions

The unqualified prescription rate of traditional Chinese medicine formula granules in the observation group was lower than that in the control group ($P < 0.05$), as shown **Table 2**.

Table 2. Comparison of unqualified prescription rates of traditional Chinese medicine formula granules (n,%)

Group	Inadequate patient education	Westernized diagnostic approach	Inappropriate dosage	Improper administration	Incorrect case information
Observation group(n=118)	1 (0.85%)	0 (0.00%)	1 (0.85%)	0 (0.00%)	0 (0.00%)
Control group (n=118)	2 (1.69%)	1 (0.85%)	1 (0.85%)	1 (0.85%)	1 (0.85%)
χ^2	-	-	-	-	-
P-value	-	-	-	-	-

Group	Non-standard prescription	Duplicate medication	Incompatible medication combinations	Incidence rate
Observation group (n=118)	0 (0.00%)	0 (0.00%)	0 (0.00%)	2 (1.69%)
Control group (n=118)	1 (0.85%)	1 (0.85%)	1 (0.85%)	9 (7.63%)
χ^2	-	-	-	4.6723
P-value	-	-	-	0.0306

3.2. Adverse reaction and patient complaint indices

The incidence of adverse reactions and patient complaint rates of traditional Chinese medicine formula granules in the observation group were lower than those in the control group ($P < 0.05$), as shown in **Table 3**.

Table 3. Comparison of the incidence of adverse reactions and patient complaint rates (n,%)

Group	Facial edema	Nausea/ Vomiting	Palpitations	Pruritus	Adverse reaction rate	Patient complaint rate
Observation group(n=118)	0 (0.00)	1 (0.85)	0 (0.00)	0 (0.00)	1 (0.85)	0 (0.00)
Control group (n=118)	2 (1.69)	3 (2.54)	1 (0.85)	1 (0.85)	7 (5.93)	5 (4.24)
χ^2	-	-	-	-	4.6579	5.1082
P-value	-	-	-	-	0.0309	0.0238

3.3. Patient satisfaction index

The satisfaction with the management of traditional Chinese medicine formula granules in the observation group was higher than that in the control group ($P < 0.05$), as shown in **Table 4**.

Table 4. Comparison of patient satisfaction with the treatment of traditional Chinese medicine formula granules (n,%)

Group	Satisfied	Somewhat satisfied	Dissatisfied	Satisfaction rate
Observation group (n=118)	82 (69.49%)	34 (28.81%)	2 (1.69%)	116 (98.31%)
Control group (n=118)	67 (56.78%)	41 (34.75%)	10 (8.47%)	108 (91.53%)
χ^2	-	-	-	5.6190
P-value	-	-	-	0.0178

4. Discussion

The dispensing of traditional Chinese medicine refers to the process where pharmacists prepare Chinese herbal decoctions or preparations based on prescriptions issued by physicians for patient use. This process involves numerous steps to ensure that patients receive safe and effective medication. During routine treatment, the quality of prescription dispensing for traditional Chinese medicine formula granules directly affects the efficacy of the medication. Unreasonable prescriptions not only fail to achieve the desired therapeutic effect but may also lead to adverse events [3]. On the one hand, due to the rich diversity of traditional Chinese medicinal resources, confusion in medication use can easily occur due to similar names. For example, both “Sanqi” and “Tusanqi” can be used to reduce swelling and pain, as well as disperse blood stasis and stop bleeding. However, long-term use of “Tusanqi” as “Sanqi” may damage the patient’s liver because “Tusanqi” contains pyrrolizidine alkaloids. On the other hand, the use of multiple names for the same herb can also lead to confusion. For instance, “Yimucao” is also known as “Chongwei” and “Kuncao”. If the dispensing personnel are not familiar with these alternative names, it may increase the risk of medication dispensing errors.

Furthermore, different processing methods of traditional Chinese medicine can affect their medicinal properties. For example, the medicinal properties of *Rehmannia glutinosa* undergo significant changes depending on the processing method. Fresh *Rehmannia glutinosa* is mainly used for promoting the production of body fluid,

cooling blood, and clearing heat, while dried *Rehmannia glutinosa* is used for promoting the production of body fluid and nourishing Yin. Processed *Rehmannia glutinosa*, on the other hand, is used for nourishing and filling the marrow, benefiting the essence, nourishing Yin, and enriching the blood.

Therefore, hospitals should strengthen the supervision of the quality of prescriptions for traditional Chinese medicine formula granules and use the rational use of traditional Chinese medicine as a management basis to ensure the safety of traditional Chinese medicine formula granules as much as possible [4]. Although traditional Chinese medicine formula granules are extracted from single herbs, they are often used in combination during clinical application. Therefore, it is still necessary to follow the principles of "Eighteen Incompatibilities" and "Nineteen Mutual Inhibitions" to avoid situations where toxicity is superimposed or efficacy is canceled out in the prescriptions. For example, if both seaweed and licorice are present in a prescription of traditional Chinese medicine formula granules, it can cause severe side effects for patients. Additionally, strengthening the supervision of the quality of prescriptions for traditional Chinese medicine formula granules can also avoid errors in medication dosage [5]. For instance, using large amounts of aconite can induce arrhythmia, affecting the safety of medication for patients [6].

Based on the data analysis in this article, the rate of unqualified prescriptions for traditional Chinese medicine formula granules in the observation group was lower than that in the control group ($P < 0.05$). Analyzing the reasons, during the improvement of the management strategy for prescriptions of traditional Chinese medicine formula granules, combining relevant guidelines and clinical medication experience to improve the prescription review system played a significant role in reducing the unqualified prescription rate of traditional Chinese medicine formula granules [7]. Additionally, emphasizing the pharmacist's review responsibilities, strictly reviewing and reporting unreasonable prescriptions, can avoid unqualified prescriptions of traditional Chinese medicine formula granules to some extent. Furthermore, after introducing the information management system, it became convenient for pharmacists to review prescriptions online, greatly improving work efficiency and further standardizing the rationality of prescriptions for traditional Chinese medicine formula granules. Finally, implementing rewards and punishments measures, such as imposing performance penalties on doctors who frequently issue unqualified prescriptions, can stimulate doctors' sense of responsibility and fundamentally reduce adverse drug events.

Another set of data in this article shows that the incidence of adverse reactions to traditional Chinese medicine formula granules and the rate of patient complaints in the observation group were lower than those in the control group ($P < 0.05$). Analyzing the reasons, during the management of prescriptions for traditional Chinese medicine formula granules, pharmacists deeply understood patients' past medication history and allergy history based on the theory of syndrome differentiation and treatment. Reviewing prescriptions based on illness and constitution, standardizing drug names, dosages, medication methods, and administration times can reduce the risk of contraindications or medication confusion in prescriptions, thereby reducing the incidence of adverse reactions. Strengthening the training of doctors and pharmacists can reduce unreasonable prescriptions from the source and ensure patient safety. Educating patients, popularizing medication knowledge, precautions, and potential medication risks, establishing good communication channels with patients, and answering patients' questions can greatly reduce the incidence of adverse reactions and patient complaints while ensuring accurate medication methods and dosages [8, 9].

The final set of data indicates that patient satisfaction with traditional Chinese medicine formula granules treatment in the observation group was higher than that in the control group ($P < 0.05$). The reason for this is closely related to the reduction of unqualified prescriptions issued by doctors and the decrease in adverse events

after improving the management strategy for traditional Chinese medicine formula granules. Simultaneously, strengthening education, emphasizing drug compatibility and dosage management, answering patients' questions, popularizing medication knowledge, valuing pharmacist training, and enhancing the competency of pharmacy staff have greatly improved patient satisfaction [10]. Additionally, after introducing the information management system, pharmacists can review prescriptions online more efficiently, handle adverse events faster, and make doctors' prescriptions for traditional Chinese medicine formula granules more reasonable, thus shortening the course of the disease and improving patient satisfaction.

5. Conclusion

In summary, after improving the management strategy for prescriptions of traditional Chinese medicine formula granules, unreasonable prescription events have decreased, the incidence of adverse drug reactions and complaint rates have decreased, and patient satisfaction with traditional Chinese medicine formula granules treatment has increased. This approach has promotional value.

Disclosure statement

The authors declare no conflict of interest.

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