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The Influence of Integrated Chinese and Western Medicine Treatment on the Quality of Life and Laboratory Indicators of Patients with Novel Coronavirus Pneumonia

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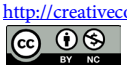

Abstract

Objective: To investigate the influence of integrated Chinese and Western medicine treatment on the quality of life and laboratory indicators of patients with novel coronavirus pneumonia (COVID-19). **Methods:** A prospective, self-controlled study was conducted to analyze the changes in corresponding laboratory indicators and quality of life in 75 confirmed COVID-19 patients treated with integrated Chinese and Western medicine in our hospital during the early stage, middle stage, recovery period, and two weeks after discharge. The effectiveness and safety of the treatment regimen were evaluated in conjunction with the time for 2019-nCoV nucleic acid conversion, disease progression, and adverse reactions. **Results:** The PLT levels in the initial stage were significantly lower than those in the recovery period in 75 patients. The CRP levels in the initial stage were significantly lower than those after discharge for 2 weeks. The TBIL, IBTL, and DHIL levels in the initial stage were significantly lower than those in the middle stage. The K^+ levels in the initial stage were significantly lower than those in the recovery period and after discharge for 2 weeks. The LYMGH levels in the initial stage were significantly lower than those in the recovery period and after discharge for 2 weeks. The TP and ALB levels in the initial stage were higher than those in the middle stage and the recovery period. The LDH levels, scores of daily activity limitation, scores of respiratory distress symptoms, scores of psychological emotions, CT imaging scores, and positive rate of nucleic acid were significantly lower than those in the recovery period and after discharge for 2 weeks. The AG, CK, CK-MB, and α-HBDH levels in the initial stage were significantly

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higher than those in the recovery period. However, the AMY level in the initial stage was significantly lower than that in the recovery period and after discharge for 2 weeks ($p < 0.05$). Among the adverse drug reactions, 33 cases had gastrointestinal system abnormalities and 8 cases had liver function abnormalities. There were no deaths at discharge, but 4 cases tested positive for nucleic acid within 4 weeks after discharge. The median time for nucleic acid conversion and length of hospital stay were 9 days and 16 days, respectively. **Conclusion:** Integrated Chinese and Western medicine treatment has a significant impact on laboratory indicators such as PLT, LYMGH, CRP, TBIL, IBTL, DHIL, TP, ALB, K^+, AG, LDH, CK, CK-MB, α-HBDH, AMY, CT imaging, and 2019-nCoV nucleic acid in COVID-19 patients. It has good clinical efficacy and safety, and can improve the quality of life of patients.

Keywords

Western Medicine Treatment, Traditional Chinese Medicine Treatment, Novel Coronavirus Pneumonia, Laboratory Indicators, Quality of Life

1. Introduction

As a highly contagious disease, COVID-19 poses a severe threat to the physical and mental health as well as the lives of individuals [1]. According to statistics, in December 2022, compared to November 2022, there was a 38.92% increase in the monthly number of newly confirmed cases and a 25.95% increase in deaths worldwide [2]. Indeed, following the complete reopening of the COVID-19 situation in China on December 7, 2022, the daily number of newly confirmed cases and deaths continued to rise in December. Over the past two years, with joint efforts across various fronts, people have gradually understood the diagnostic and treatment characteristics of COVID-19. The National Health Commission of China has successively issued the first to ninth editions of the trial treatment plan for COVID-19 [3]. It has been confirmed that a combination of Chinese and Western medicine treatment can improve symptoms, shorten the course of the disease, and promote recovery. For patients in the recovery phase, it can eliminate residual pathogens, support vital energy, and facilitate the rehabilitation process. Sun Yanjun, *et al.* [4], through a systematic evaluation of the effectiveness and safety of traditional Chinese medicine and antiviral antibody therapy in treating COVID-19, confirmed that standard treatment combined with traditional Chinese medicine is more effective in reducing the mortality rate, shortening hospitalization time and nucleic acid conversion time, and reducing the mechanical ventilation rate, with a low incidence of adverse reactions/events. It is well known that after invading the human body, the novel coronavirus (2019-nCoV) primarily attacks the respiratory system, immune system, and also causes damage to the heart. There is a risk of adverse drug reactions during the treatment process [5]. The clinical symptoms and signs such as fever, dry cough, fatigue, chest tightness, excessive sweating, and diarrhea, coupled with the

unique isolation and treatment measures taken for patients, impose significant psychological pressure on some patients, severely affecting their quality of life [6]. Therefore, I believe that the efficacy of the broad sense treatment of COVID-19 should include the quality of life. It is necessary to investigate the symptoms and signs mentioned above that appear in each phase of the disease in COVID-19 patients treated with a combination of Chinese and Western medicine, evaluate the effectiveness and safety of treatment plans using laboratory indicators, provide a basis for COVID-19 treatment, and offer diagnostic and treatment ideas for unknown emerging infectious diseases. The following report is now presented:

2. Materials and Methods

2.1. Study Subjects and Grouping

A total of 75 confirmed COVID-19 patients who received combined Chinese and Western medicine treatment at the Fourth People's Hospital of Nanning City from January 2020 to March 2022 were collected. Among them, there were 44 males and 31 females, aged 5 to 90 years old, with a median age of 43.00 (31.00, 53.00) years. The time from symptom onset to treatment ranged from 1 to 10 days, with a median of 2.00 (1.00, 5.00) days. Some patients had underlying diseases, with hypertension and coronary heart disease being the most common. According to the Chinese medicine treatment protocol, they were divided into three groups: the Chinese herbal medicine group (referred to as Group 1), which consisted of 35 cases, including 17 males and 18 females, with a median age of 38.00 (30.00, 46.00) years; the Chinese herbal medicine combined with Xuebijing group (referred to as Group 2), which included 20 cases, 11 males and 9 females, with a median age of 58.50 (46.00, 66.75) years; and the Chinese herbal medicine combined with Lianhua Qingwen group (referred to as Group 3), which included 20 cases, 15 males and 5 females, with a median age of 34.00 (26.00, 43.75) years. Please refer to **Table 1** for details.

1) Diagnostic criteria and classification of confirmed cases: The diagnosis of cases is based on the latest version of the "Diagnosis and Treatment Scheme for Novel Coronavirus Pneumonia" issued by the National Health Commission (according to the version released at the time of patient consultation), combined with epidemiological history, clinical manifestations, and laboratory tests. The clinical classification includes mild, common, severe, and critical types.

2) Inclusion and exclusion criteria: Inclusion criteria: a), Confirmed cases; b), No age or gender restrictions; c), No restrictions on mild, common, severe, or critical types; d), Combination of Chinese and Western medicine treatment. Exclusion criteria: Meeting any of the following criteria can result in exclusion: a), patients with preexisting severe heart, lung, liver, kidney, or other important organ diseases before the onset of illness; b), patients with severe infections; c) patients with major neurological or psychiatric diseases or severe diseases affecting survival; d) patients with allergies or hypersensitivity to the medications used; e) Pregnant or lactating women.

Table 1. General information, clinical characteristics, and treatment effects of patients in three groups [n (%) or M (P25, P75)].

project		all (n = 75)	group 1 (n = 35)	group 2 (n = 20)	group 3 (n = 20)	F/X^2	P
Gender (male) (n)		44 (58.67)	17 (48.57)	11 (55.00)	15 (75.00)	3.645	0.162
Age (years)		43.00 (31.00, 53.00)	38.00 (30.00, 46.00)	58.50 (46.00, 66.75)[ac]	34.00 (26.00, 43.75)	9.195	<0.001
Main underlying diseases	Hypertension (n)	9 (12.00)	1 (2.86)	7 (35.00)[a]	1 (5.00)[c]	13.535	0.001
	Diabetes (n)	4 (5.33)	2 (5.71)	2 (10.00)	0 (0.00)	1.973	0.373
	Pneumonia (n)	18 (24.00)	10 (28.57)	7 (35.00)	1 (5.00)[bc]	5.610	0.060
Main comorbidities	Liver dysfunction (n)	16 (21.33)	4 (11.43)	7 (35.00)[a]	5 (25.00)	4.373	0.112
	Anemia (n)	6 (8.00)	2 (5.71)	4 (20.00)	0 (0.00)[c]	5.822	0.054
	Electrolyte disturbance (n)	11 (14.67)	2 (5.71)	9 (45.00)[a]	0 (0.00)[c]	20.110	<0.001
Main adverse drug reactions	Gastrointestinal system abnormalities (n)	23 (30.67)	13 (37.14)	4 (20.00)	6 (30.00)	1.741	0.419
	Rash (n)	3 (4.00)	3 (8.57)	0 (0.00)	0 (0.00)	3.524	0.172
	Abnormal liver function (n)	8 (10.67)	2 (5.71)	4 (20.00)	2 (10.00)	2.702	0.259
Conversion (Light to Normal or Normal to Heavy) (n)		22 (29.33)	9 (25.71)	7 (35.00)	6 (30.00)	0.528	0.768
Discharge status (cured) (n)		66 (88.00)	30 (85.71)	18 (90.00)	18 (90.00)	0.320	0.852
Symptom onset to treatment time (d)		2.00 (1.00, 5.00)	2.00 (1.00, 7.00)	3.00 (1.00, 5.00)	1.00 (1.00, 1.75)[bc]	6.129	0.003
Time for nucleic acid to turn negative (d)		9.00 (6.00, 16.00)	7.00 (5.00, 13.00)	10.00 (5.00, 15.00)	16.00 (8.25, 25.75)[bc]	7.053	0.002
Hospitalization time (d)		16.00 (13.00, 22.00)	13.00 (12.00, 17.00)	18.50 (15.25, 21.00)	21.50 (15.25, 27.75)[bc]	5.038	0.009

Note: "a" represents the difference value between Group 1 and Group 2; "b" represents the difference value between Group 1 and Group 3; "c" represents the difference value between Group 2 and Group 3, all <0.05.

3) Ethics: This study complies with medical ethics standards and has been approved by the hospital's ethics committee (Approval No.: 2020-03). All tests and treatments have obtained informed consent from patients or their families.

2.2. Treatment Methods: All Patients Received a Combination of Chinese and Western Medicine Treatment

1) Western medicine treatment: According to the "Diagnosis and Treatment Scheme for Novel Coronavirus Infection" (Trial 4th, 5th, 6th, 7th, 8th version) and "Diagnosis and Treatment Scheme for Severe and Critical Cases of Novel Coronavirus Infection" (Trial 2nd version), the treatment plan is followed. a) General treatment: Mainly includes symptomatic supportive treatment, maintenance of water, electrolyte and acid-base balance, oxygen therapy and respiratory support, circulation monitoring and support, nutritional support treatment, etc. Western medicine mainly consists of antiviral drugs (lopinavir/ritonavir 500 mg + interferon alpha nebulization inhalation 500 × 104 U, twice daily, for a duration of 10 days), anti-infective drugs (cephalosporins, penicillin, moxifloxacin, etc.), and immune enhancement drugs (intravenous immunoglobulin, thymopentin, etc.). If the nucleic acid test remains positive after more than 10 days of use, an intravenous injection of artemether compound is given 60 mg

twice daily, for a duration of 10 days. b) Treatment for severe and critical cases: In addition to symptomatic treatment, active prevention and treatment of complications, treatment of underlying diseases, prevention of secondary infections, and timely organ function support are carried out, including respiratory support, circulatory support, and other treatment measures (glucocorticoids, plasma therapy, etc.).

2) Traditional Chinese medicine (TCM) treatment:

a) TCM treatment alone: The recommended "Guangxi Zhuang Autonomous Region's Treatment Scheme for Novel Coronavirus Pneumonia in Traditional Chinese Medicine" (Trial 3rd version) was used, with slight adjustments made by Professor Tang Nong, the Chief Consultant of the Autonomous Region, based on the patient's four diagnostic methods, and combined with acupuncture, massage, acupoint application, and other comprehensive TCM treatment schemes. The herbal formula used is the "Huashi Qingfei Immunomodulation Decoction" (modified from Guizhi Erchen Tang). Composition: 15 g of Guizhi (Cinnamon Twig), 15 g of Cangzhu (Atractylodes), 15 g of Baizhi (Angelica Dahurica), 20 g of Shichangpu (Rhizoma Acori Tatarinowii), 20 g of Nanshanzha (Fructus Crataegi), 15 g of Chenpi (Citrus Peel), 20 g of Fabanxia (Pinellia Tuber), 15 g of Fuling (Poria), 20 g of Gegeng (Kudzu Root), 20 g of Jinyinhua (Lonicerae Japonicae Flos), 5 g of Zhigancao (Processed Licorice), and 30 g of Shengjiang (Fresh Ginger). Based on this formula, adjustments are made according to the patient's clinical symptoms: Mild cough or dry cough is treated with an additional 15 g of Tinglizi (Descurainiae Semen); chest tightness and discomfort are treated with an additional 15 g of Gualou Kelan (Fructus Trichosanthis Pulp); dry mouth is treated with an additional 20 g of Muhudie (Ophiopogon Tuber) and 30 g of Lugen (Phragmites Rhizome); bitter taste in the mouth is treated with an additional 15 g of Zhuru (Bamboo Shavings) or 15 g of Huangqin (Scutellariae Radix); severe asthma is treated with 10 - 15 g of Mahuang (Ephedra); constipation is treated with 30 g of Laifuzi (Raphani Semen) or 6 - 9 g of Dahuang (Rhei Rhizoma); diarrhea is treated with 15 g of Shiliupi (Pomegranate Peel); for patients with yellow tongue coating or redness on the undersurface of the tongue, 15 g of Leigongteng (Tripterygium Wilfordii) can be added (decoct for 2 hours and retain the liquid, discard the residue). Oral administration, 1 dose per day, 3 doses for 1 course of treatment, a total of 4 courses.

b) Hemopurification Treatment in the Blood Purification Group

Based on the traditional Chinese medicine treatment in the simple group, hemopurification injection of 50 ml was mixed with 100 ml of 0.9% saline solution for intravenous infusion. The infusion time is between 30 to 40 minutes, twice a day. For severe cases, it can be administered three times a day.

c) Lianhua Qingwen Treatment in the Combination Group

Based on the traditional Chinese medicine treatment in the simple group, oral administration of Lianhua Qingwen granules (produced by Shijiazhuang Yiling Pharmaceutical Co., Ltd., approved by the National Medical Products Adminis-

tration with the approval number Z20060031) at a dose of 6 g once, three times a day, continuously for 5 - 10 days.

2.3. Observation Indicators and Methods

2.3.1. COVID-19 Staging Criteria

Based on the patient's age, underlying conditions, constitution, and changes in symptoms, tongue appearance, coating, and pulse, traditional Chinese medicine differentiation was conducted in accordance with the "Diagnosis and Treatment Protocol for Novel Coronavirus Pneumonia" (Trial Version 4th and 5th Editions). The clinical treatment period is divided into four stages:

1) Early stage (Cold-dampness obstructing the lungs): Clinical manifestations include chills, fever or no fever, dry cough, dry throat, fatigue, chest tightness, epigastric fullness, or nausea, and vomiting, and loose stools. Tongue: pale or pale red; coating: white and greasy; pulse: moist.

2) Middle stage (Epidemic toxin obstructing the lungs): Clinical manifestations include persistent or alternating fever, cough with little sputum or yellow sputum, abdominal distension, constipation; chest tightness, shortness of breath, wheezing with movement; tongue: red; coating: yellow and greasy or dry; pulse: slippery and rapid.

3) Severe stage (Internal closure and external escape): Clinical manifestations include difficulty breathing, frequent dyspnea, requiring assisted ventilation, accompanied by stupor, restlessness, cold extremities with sweating, dark purple tongue, thick and greasy or dry coating, pulses: floating, large, and without roots.

4) Recovery stage (Lung-spleen Qi deficiency): Clinical manifestations include shortness of breath, fatigue, poor appetite, fullness in the abdomen, weak bowel movements, loose and unsatisfactory stools. Tongue: pale and swollen; coating: white and greasy.

2.3.2. Quality of Life

The scale refers to the content and format of the Health Survey Questionnaire (SF-36), St. George's Respiratory Questionnaire (SGRQ), and the Adult Asthma Quality of Life Questionnaire. The opinions of respiratory physicians, clinical epidemiologists, and statisticians were considered, combined with the patient's symptoms and signs, to develop the scale [7] [8]. The scale consists of 16 items, including three aspects: limitations in daily activities (including washing face and brushing teeth, indoor activities, talking and chatting with others, watching TV, going to the toilet, etc., which are the most common daily activities for COVID-19 patients), respiratory symptoms (including cough, chest tightness, breathlessness, impact of cough on life, appetite, etc.), and psychological emotions (sleep, irritability, pessimism, confidence in treatment, concerns about current and future health, etc.). Each item is divided into five levels: always, often, sometimes, occasionally, and never. They are scored 5-1, representing the worst quality of life as 5 and the best as 1. The lower the scores for each factor

and the total score, the better the quality of life.

2.3.3. Radiological Examination

Chest CT scans are performed using the Optima CT680 Expert 64-slice CT scanner. The evaluation of CT scans is based on a scoring system, which includes positive findings of lung shadows on the CT images (including single ground-glass opacity, halo sign or reverse halo sign, pure ground-glass opacity, thickened bronchovascular bundles with surrounding ground-glass opacities, mixed ground-glass opacity involving lobes or segments, and other inflammatory lesions, interstitial lesions, and fibrosis). The quantitative criteria are as follows: complete absorption is scored as 0, significant absorption as 1, partial absorption as 2, and no absorption as 3. Lower scores indicate better effectiveness.

2.3.4. Laboratory Tests

The C-reactive protein (CRP) was detected using the Wantai "Fei Ce" immunofluorescence analyzer. The blood routine is analyzed using the Mindray BC6900 automated five-part differential blood cell analyzer, the electrolytes, amylase (AMY), myocardial enzymes, liver function, and renal function are tested using the Hitachi 008AS automatic biochemical analyzer, and 2019-nCoV nucleic acid is detected using the ABI1500 virus nucleic acid detection analyzer. All tests are conducted strictly following the laboratory's clinical operating procedures, with proper internal controls and interlaboratory quality assessment. The specific laboratory indicators include potassium ions (K^+), chloride ions (Cl^-), sodium ions (Na^+), calcium ions (Ca^{2+}), anion gap (AG), osmotic pressure (STY), urea (UREA), creatinine (CREA), uric acid (UA), bicarbonate (HCO_3^-), blood glucose (GLU), creatine kinase MB isoenzyme (CK-MB), creatine kinase (CK), lactate dehydrogenase (LDH), alpha-hydroxybutyrate dehydrogenase (α-HBDH), AMY, aspartate aminotransferase (AST), alanine aminotransferase (ALT), total bilirubin (TBIL), direct bilirubin (DHIL), indirect bilirubin (IBTL), total protein (TP), globulin (GLO), albumin (ALB), total bile acid (TBA) and other biochemical indicators; white blood cells (WBC), red blood cells (RBC), hemoglobin (HGB), platelets (PLT), neutrophils (NEUT), lymphocytes (LYMGH), and other routine blood indicators, as well as CRP and 2019-nCoV nucleic acid.

2.3.5. Nucleic Acid Conversion Time and Disease Progression

This refers to the average time from the first positive nucleic acid test to the negative conversion of the nucleic acid test after treatment, as well as the proportion of cases transitioning from mild to moderate or from moderate to severe or critical, the average length of hospital stay, and the clinical cure rate.

2.3.6. Safety Observations

Based on various indicators of patients before and after treatment, combined with various complications, observe and monitor adverse reactions such as gastrointestinal reactions, bradycardia, and abnormal liver and kidney function in

all patients during the study period.

2.3.7. Observation and Evaluation Methods

A single-center, prospective, self-controlled comparison study method was used, combining traditional Chinese and Western medicine treatments. Experimental indicators, quality of life, and changes in CT scans are observed at the early stage, middle stage, recovery stage (before discharge), and 2 weeks after discharge. The effectiveness and safety of the treatment plan are evaluated by considering nucleic acid conversion time, disease progression, and adverse reactions.

2.4. Statistical Methods

Data analysis and processing are performed using SPSS 22.0 statistical software. For normally distributed continuous data, the mean ± standard deviation (represented by M ± SD) is used for intergroup comparisons, while for non-normally distributed continuous data, the median (P25, P75) is used for intergroup comparisons using the Mann-Whitney U test. Count data are expressed as frequencies or percentages, and comparisons between groups are conducted using the chi-square test. A significance level of $P < 0.05$ was considered statistically significant.

3. Results

3.1. General Information, Clinical Characteristics, and Treatment Effects of Patients

Among the 75 patients, hypertension (12.00%) and diabetes (5.33%) were the main underlying diseases. Both groups had a relatively older age, with significantly more hypertension cases than in Group 1 and Group 3. Among the complications, pneumonia accounted for 24.00%, liver dysfunction for 21.33%, electrolyte disorders for 14.67%, and anemia for 8.00%. Adverse reactions to antiviral drugs were common, with 30.67% showing abnormal gastrointestinal system symptoms, 10.67% showing liver dysfunction, and 4.00% experiencing rashes. In terms of treatment outcomes, there were 19 cases transitioning from mild to moderate and 3 cases transitioning from moderate to severe, accounting for a total of 29.33%. Upon discharge, 66 cases were cured, 9 cases showed improvement, and there were no deaths, but 4 cases tested positive again within four weeks of discharge. The median time from symptom onset to treatment, nucleic acid conversion time, and hospital stay were 2 days, 9 days, and 16 days, respectively. See Table 1.

3.2. Changes in Quality of Life and Laboratory Indicators of Patients before and after Treatment

During follow-up, the PLT, CRP, TBIL, IBTL, DHIL, and K^+ levels of the 75 patients showed an initial increase followed by a gradual decrease. Among them,

the PLT level in the initial stage was significantly lower than that in the recovery period, and the CRP level in the initial stage was significantly lower than that at 2 weeks after discharge. The TBIL, IBTL, and DHIL levels in the initial stage were significantly lower than those in the middle stage, and the K^+ level in the initial stage was significantly lower than that in the recovery period and 2 weeks after discharge. TP and ALB levels initially decreased and then gradually increased, with both TP and ALB levels in the initial stage being higher than those in the middle stage and the recovery period. LYMGH, UA, and TBA levels showed a slow continuous increase, with the LYMGH level in the initial stage being significantly lower than that in the recovery period and 2 weeks after discharge. LDH, daily activity limitation score, respiratory difficulty symptom score, psychological emotion score, CT imaging score, and nucleic acid positivity rate showed a gradual decrease. In the initial stage, they were all significantly lower than those in the recovery period and 2 weeks after discharge. AG, AMY, CK, CK-MB, and α-HBDH levels initially decreased and then increased, with the AG, CK, CK-MB, and α-HBDH levels in the initial stage being significantly higher than those in the recovery period. However, the AMY level in the initial stage was significantly lower than that in the recovery period and 2 weeks after discharge. See Table 2.

3.3. Changes in Quality of Life and Laboratory Indicators of Patients Treated with Different Traditional Chinese Medicine (TCM) Treatment Plans

During follow-up, in Group 1, the CRP, TBIL, IBTL, and K^+ levels initially increased and then gradually decreased. Among them, the CRP, TBIL, and IBTL levels in the initial stage were significantly lower than those in the middle stage, and the K^+ level in the initial stage was significantly lower than that in the recovery period and 2 weeks after discharge. The TP, ALB, CK, CK-MB, psychological emotion score, CT imaging score, and nucleic acid positivity rate mostly decreased. Among them, the TP, ALB, CT imaging score, and nucleic acid positivity rate in the initial stage were significantly higher than those in the other three stages, and the CK level in the initial stage was significantly higher than that in the middle stage and the recovery period. The CK-MB level in the initial stage was significantly higher than that in the middle stage, and the psychological emotion score in the initial stage was significantly higher than that in the recovery period and 2 weeks after discharge. In Group 2, the CRP, TBIL, IBTL, DHIL, and K^+ levels initially increased and then gradually decreased. Among them, the TBIL, IBTL, and DHIL levels in the initial stage were significantly lower than those in the middle stage, and the CRP level in the initial stage was significantly higher than that in the recovery period and 2 weeks after discharge. The CK, CK-MB, LDH, HBDH, daily activity limitation score, respiratory difficulty symptom score, psychological emotion score, CT imaging score, and nucleic acid positivity rate mostly decreased. Among them, the nucleic acid positivity rate in the initial stage was significantly higher than those in the other

Table 2. Comparison of differences in patients' quality of life and laboratory examination indicators before and after treatment [n (%) or x ± s or M (P25, P75)].

Item	Early stage	Mid-stage	Recovery period	2 weeks after discharge	F/Z	P
WBC (10^9/L)	6.20 (4.50, 7.20)	6.00 (4.60, 7.80)	6.40 (5.10, 7.50)	6.70 (6.00, 7.70)[c]	1.999	0.114
RBC (10^{12}/L)	4.77 ± 0.74	4.58 ± 0.82	4.51 ± 0.83b	4.56 ± 0.74	1.563	0.198
PLT (10^9/L)	228.00 (193.00, 294.00)	259.00 (215.00, 315.00)	273.00 (234.00, 319.00)[b]	250.00 (221.00, 291.00)	2.627	0.051
LYMGH (10^9/L)	1.30 (1.00, 1.70)	1.50 (1.00, 1.90)	1.70 (1.20, 2.10)[b]	1.90 (1.60, 2.30)[c]	1.810	0.145
NEUT (10^9/L)	4.30 (3.00, 5.21)	3.70 (2.80, 5.40)	3.70 (3.00, 5.10)	4.10 (3.50, 4.70)	0.117	0.950
HGB (g/L)	138.58 ± 23.00	133.90 ± 21.02	131.64 ± 22.86	134.37 ± 21.68	1.282	0.281
CRP (mg/L)	3.00 (0.80, 9.00)	4.00 (1.00, 18.30)	1.40 (0.50, 4.00)	1.10 (0.50, 2.70)[c]	5.219	0.002
TP (g/L)	74.41 ± 6.95	70.93 ± 6.62[a]	71.26 ± 5.55[b]	73.56 ± 4.36	6.181	<0.001
ALB (g/L)	43.22 ± 5.73	40.56 ± 4.62[a]	40.11 ± 4.93[b]	41.81 ± 4.28	6.035	0.001
GLO (g/L)	31.20 ± 6.72	30.10 ± 6.27	31.13 ± 5.22	31.71 ± 5.45	0.959	0.412
ALT (U/L)	26.00 (17.00, 45.00)	26.20 (17.00, 39.00)	27.00 (18.00, 46.00)	25.00 (17.00, 44.00)	0.226	0.878
AST (U/L)	25.70 (20.90, 35.00)	24.00 (19.00, 32.00)	22.00 (18.00, 28.00)	23.00 (18.00, 30.30)	1.639	0.180
TBIL (umol/L)	7.70 (5.00, 10.62)	11.70 (8.57, 16.90)[a]	7.40 (5.50, 12.77)	7.23 (5.21, 10.51)	8.087	<0.001
IBTL (U/L)	4.97 (3.45, 6.90)	7.90 (5.17, 11.50)[a]	5.15 (3.53, 8.51)	5.40 (3.78, 7.66)	10.183	<0.001
DHIL (umol/L)	2.60 (1.90, 3.66)	4.00 (2.72, 5.88)[a]	2.60 (1.72, 4.18)	2.17 (1.42, 3.20)	3.935	0.009
TBA (umol/L)	3.10 (1.60, 7.30)	3.10 (2.00, 4.70)	3.50 (1.60, 5.20)	4.10 (2.90, 5.90)	0.768	0.513
UREA (mmol/L)	4.10 (3.26, 5.10)	4.51 (3.54, 5.85)	5.00 (3.60, 6.21)	3.49 (3.12, 4.21)	0.599	0.616
CREA (umol/L)	65.80 (54.10, 79.20)	70.50 (59.90, 83.00)	69.70 (52.63, 79.10)	59.70 (48.50, 71.60)	2.098	0.101
UA (umol/L)	291.00 (240.00, 373.00)	293.00 (233.00, 373.00)	298.00 (257.00, 365.00)	314.00 (268.00, 388.00)	0.913	0.435
GLU (mmol/L)	5.71 (5.17, 6.64)	5.28 (4.79, 6.84)	5.01 (4.68, 5.83)[b]	5.23 (4.67, 6.23)	1.542	0.204
Ca^{2+} (mmol/L)	2.24 ± 0.16	2.22 ± 0.16	2.26 ± 0.13	2.26 ± 0.10	1.613	0.187
K^+ (mmol/L)	3.93 ± 0.41	3.95 ± 0.47	4.23 ± 0.35[b]	4.09 ± 0.31[c]	9.277	<0.001
CI^- (mmol/L)	103.30 ± 3.05	102.98 ± 3.22	104.03 ± 2.85	103.00 ± 2.61	2.082	0.103
Na^+ (mmol/L)	139.01 ± 2.99	138.31 ± 3.31	138.67 ± 2.75	139.07 ± 2.37	1.113	0.344
HCO_3^- (mmol/L)	29.05 ± 5.51	29.99 ± 4.46	29.87 ± 4.25	29.87 ± 3.98	0.666	0.573
AG (mmol/L)	9.55 (7.53, 12.84)	8.06 (6.13, 12.49)	8.11 (5.88, 12.57)[b]	10.37 (7.50, 12.84)	2.578	0.054
STY (mOsm/L)	286.17 ± 5.92	284.39 ± 8.83	286.34 ± 5.23	287.02 ± 4.46	2.362	0.071
AMY (U/L)	65.00 (53.00, 83.90)	63.30 (51.00, 79.60)	70.10 (57.00, 94.70)[b]	78.50 (57.00, 97.00)[c]	2.725	0.044
CK (U/L)	86.70 (66.80, 141.20)	70.00 (55.80, 98.00)	60.50 (42.10, 77.30)[b]	70.60 (54.30, 97.40)[c]	3.333	0.020
CK-MB (U/L)	13.00 (10.00, 17.00)	10.00 (7.00, 13.00)[a]	10.00 (7.00, 12.00)[b]	13.00 (10.21, 16.00)	7.713	<0.001
LDH (U/L)	198.00 (177.10, 231.50)	194.64 (169.00, 235.00)	175.00 (152.00, 200.00)[b]	175.00 (154.00, 211.00)[c]	5.168	0.002
α-HBDH (U/L)	153.60 (134.00, 179.00)	144.00 (132.00, 175.40)	137.00 (119.00, 160.00)[b]	144.73 (127.60, 162.00)[c]	3.623	0.014
Limited daily activity score	9.00 (6.00, 14.00)	9.00 (5.00, 11.00)	5.00 (5.00, 7.00)[b]	5.00 (5.00, 5.00)[c]	15.531	<0.001
Symptom score of dyspnea	9.00 (7.00, 14.00)	9.00 (6.00, 11.00)	6.00 (5.00, 9.00)[b]	6.00 (5.00, 6.00)[c]	18.543	<0.001
Psychological and emotional score	14.00 (11.00, 17.00)	12.00 (9.00, 16.00)[a]	8.00 (7.00, 11.00)[b]	7.00 (6.00, 8.00)[c]	45.168	<0.001
Imaging CT score	3.00 (2.00, 3.10)	2.00 (2.00, 3.00)[a]	2.00 (1.00, 2.00)[b]	1.00 (1.00, 1.00)[c]	120.379	<0.001
Nucleic acid positivity rate	72 (96.00)	47 (62.67)	0 (0.00)[b]	1 (1.33)[c]	202.213	<0.001

Note: "a", "b", and "c" respectively represent the difference values between the initial project and the mid-term, rehabilitation period, and 2 weeks after discharge, all of which are <0.05.

three stages, the CK-MB level in the initial stage was significantly higher than that in the recovery period, and the daily activity limitation score and respiratory difficulty symptom score in the initial stage were significantly higher than those 2 weeks after discharge. The CK, LDH, HBDH, psychological emotion score, and CT imaging scores in the initial stage were significantly higher than those in the recovery period and 2 weeks after discharge. In Group 3, the CK, HBDH, daily activity limitation score, respiratory difficulty symptom score, psychological emotion score, CT imaging score, and nucleic acid positivity rate mostly decreased. Among them, the nucleic acid positivity rate in the initial stage was significantly higher than those in the other three stages, the HBDH level and daily activity limitation score in the initial stage were significantly higher than those 2 weeks after discharge, and the CK, respiratory difficulty symptom score, psychological emotion score, and CT imaging score in the initial stage were significantly higher than those in the recovery period and 2 weeks after discharge. The AMY levels in all three groups initially decreased and then increased, with Group 1 having significantly lower levels in the initial stage compared to 2 weeks after discharge, and Group 2 having significantly lower levels in the initial stage compared to the recovery period and 2 weeks after discharge. See **Table 3**.

Table 3. Comparison of differences in quality of life and selected laboratory examination indicators before and after treatment among three groups of patients [n (%) or x ± s or M (P25, P75)].

Item	group	Early stage	Mid-stage	Recovery period	2 weeks after discharge	F/Z	P
CRP (mg/L)	1	1.00 (0.70, 3.30)	5.00 (1.00, 17.00)[a]	2.40 (0.70, 2.40)	1.10 (0.50, 2.40)	6.012	0.001
	2	12.25 (4.07, 43.05)	18.95 (4.25, 33.87)	2.65 (1.00, 13.95)b	2.40 (1.10, 6.87)[c]	3.049	0.034
	3	0.80 (0.50, 6.35)	1.30 (0.50, 3.45)	0.50 (0.50, 1.22)	0.65 (0.50, 2.22)	0.337	0.798
TP (g/L)	1	76.72 ± 5.21	71.28 ± 6.41[a]	71.70 ± 4.96[b]	74.26 ± 3.36[c]	8.541	<0.001
	2	73.31 ± 8.21	69.33 ± 7.38	70.13 ± 6.95	73.70 ± 5.34	1.960	0.127
	3	71.48 ± 7.23	71.92 ± 6.21	71.60 ± 5.08	72.20 ± 4.73	0.060	0.981
ALB (g/L)	1	44.22 ± 5.06	40.55 ± 3.71[a]	40.27 ± 3.86[b]	41.36 ± 2.84[c]	7.333	0.000
	2	40.28 ± 6.62	37.41 ± .31	36.96 ± 4.38	39.30 ± 3.65	2.069	0.111
	3	44.42 ± 5.09	43.73 ± 4.35	42.98 ± 5.46	45.11 ± 5.02	0.665	0.576
TBIL (umol/L)	1	6.83 (5.00, 9.60)	10.40 (6.71, 18.60)[a]	7.80 (5.50, 12.51)	7.23 (4.88, 9.03)	3.475	0.018
	2	7.50 (4.79, 9.95)	14.85 (9.95, 20.42)[a]	6.40 (4.67, 7.47)	5.76 (4.45, 7.14)	14.798	<0.001
	3	9.39 (7.20, 13.31)	11.10 (6.55, 14.96)	11.19 (7.00, 14.43)	12.01 (7.88, 15.09)	0.275	0.844
IBTL (U/L)	1	4.77 (3.04, 6.60)	7.40 (5.00, 12.90)[a]	5.40 (3.60, 9.25)	4.80 (3.80, 5.94)	5.566	0.001
	2	5.05 (3.13, 6.85)	10.21 (7.10, 12.00)[a]	4.40 (3.17, 5.38)	4.01 (3.15, 5.76)	14.168	<0.001
	3	6.19 (4.32, 9.24)	7.11 (4.25, 9.11)	7.53 (4.93, 9.58)	8.33 (5.76, 11.25)	0.738	0.532
DHIL (umol/L)	1	2.16 (1.70, 3.00)	3.80 (2.50, 6.20)	2.54 (1.61, 4.10)	2.17 (1.60, 2.95)	1.280	0.284
	2	2.60 (1.89, 3.17)	5.05 (3.22, 6.14)[a]	2.05 (1.43, 2.85)	1.42 (1.25, 2.16)	9.945	<0.001
	3	3.57 (2.51, 4.24)	3.82 (2.41, 5.63)	3.33 (2.18, 4.96)	3.15 (2.11, 4.60)	0.237	0.871
K^+ (mmol/L)	1	3.95 ± 0.34	4.08 ± 0.48	4.31 ± 0.32[b]	4.15 ± 0.32[c]	5.530	0.001
	2	3.97 ± 0.60	3.71 ± 0.47	4.26 ± 0.37	4.07 ± 0.32	4.972	0.003
	3	3.87 ± 0.28	3.98 ± 0.35	4.07 ± 0.35	4.00 ± 0.27	1.385	0.254

Continued

AMY (U/L)	1	71.00 (54.30, 84.00)	66.00 (51.80, 88.00)	74.40 (61.60, 94.70)	84.80 (60.50, 98.50)[c]	1.376	0.253
	2	59.00 (45.25, 83.57)	56.00 (49.50, 78.50)	76.25 (59.70, 113.82)[b]	71.70 (54.55, 99.82)[c]	4.009	0.011
	3	65.36 (53.57, 71.98)	63.29 (53.50, 74.79)	64.15 (53.57, 85.57)	67.75 (53.57, 87.77)	0.174	0.914
CK (U/L)	1	86.70 (66.00, 134.50)	64.20 (56.10, 85.70)[a]	60.50 (46.70, 76.50)[b]	74.00 (61.70, 102.37)	3.628	0.015
	2	100.75 (71.95, 209.35)	94.75 (56.02, 161.65)	55.30 (32.07, 82.47)[b]	65.80 (53.20, 99.02)[c]	4.888	0.004
	3	78.68 (64.80, 124.60)	70.15 (50.32, 90.26)	67.10 (48.13, 78.10)[b]	68.85 (50.57, 85.85)[c]	1.032	0.383
CK-MB (U/L)	1	12.00 (10.00, 17.00)	9.00 (7.00, 12.00)[a]	9.40 (6.00, 14.00)	13.00 (12.00, 16.00)	5.212	0.002
	2	14.00 (12.00, 20.75)	12.00 (5.50, 14.75)	9.00 (8.00, 12.00)[b]	14.50 (11.25, 17.00)	3.186	0.028
	3	12.00 (10.07, 16.25)	11.17 (8.64, 13.79)	11.00 (9.27, 12.35)	10.33 (8.41, 15.82)	1.814	0.152
LDH (U/L)	1	187.00 (174.20, 219.00)	190.00 (163.31, 214.00)	172.10 (155.00, 191.00)	172.00 (153.00, 214.00)	0.629	0.597
	2	244.85 (199.50, 343.00)	242.95 (197.25, 343.00)	189.50 (156.25, 227.00)[b]	177.50 (159.25, 226.00)[c]	4.977	0.003
	3	180.06 (174.00, 207.25)	177.77 (154.90, 215.14)	167.98 (141.59, 181.50)	171.11 (149.48, 184.71)	1.630	0.190
α-HBDH (U/L)	1	147.00 (129.21, 167.50)	137.50 (122.50, 150.00)	125.00 (115.60, 158.90)	146.00 (124.30, 177.80)	0.659	0.578
	2	173.55 (151.82, 268.00)	170.20 (141.75, 247.10)	139.00 (118.10, 183.72)[b]	152.35 (130.07, 190.40)[c]	2.678	0.053
	3	149.80 (140.53, 178.10)	150.15 (130.00, 170.72)	143.75 (124.60, 153.45)	138.67 (124.92, 148.34)[c]	2.338	0.080
Limited daily activity score	1	2.40 (1.10, 5.00)	3.20 (2.00, 4.70)	2.700 (1.40, 4.50)	3.30 (2.70, 4.60)	0.346	0.792
	2	12.00 (9.25, 15.00)	10.50 (9.25, 14.25)	6.50 (5.00, 11.75)	5.00 (5.00, 7.00)[c]	5.254	0.002
	3	6.50 (5.00, 9.50)	5.00 (5.00, 6.00)	5.00 (5.00, 5.00)	5.00 (5.00, 5.00)[c]	2.079	0.110
Symptom score of dyspnea	1	10.00 (7.00, 15.00)	9.00 (7.00, 11.00)	7.00 (6.00, 8.00)[b]	6.00 (5.00, 6.00)[c]	11.658	<0.001
	2	9.50 (7.00, 13.50)	10.00 (9.25, 13.50)	9.00 (6.25, 10.00)	6.00 (5.25, 7.75)[c]	5.066	0.003
	3	7.00 (6.00, 12.00)	6.00 (5.00, 9.75)	5.50 (5.00, 6.50)[b]	5.50 (5.00, 5.00)[c]	4.115	0.009
Psychological and emotional score	1	14.00 (12.00, 17.00)	13.00 (10.00, 16.00)	8.00 (7.00, 10.00)[b]	7.00 (6.00, 8.00)[c]	31.167	<0.001
	2	14.50 (14.00, 18.75)	14.00 (12.00, 17.75)	10.00 (8.00, 12.00)[b]	7.00 (6.00, 8.75)[c]	16.759	<0.001
	3	10.00 (8.25, 14.50)	7.00 (6.00, 11.50)	6.50 (6.00, 7.75)[b]	6.00 (6.00, 6.75)[c]	6.275	0.001
Imaging CT score	1	3.00 (3.00, 3.00)	2.00 (2.00, 3.00)[a]	2.00 (1.00, 2.00)[b]	1.00 (1.00, 1.00)[c]	67.601	<0.001
	2	3.00 (3.00, 3.00)	3.00 (2.00, 3.00)	1.00 (1.00, 2.00)[b]	1.00 (1.00, 1.00)[c]	40.475	<0.001
	3	3.00 (2.00, 3.00)	2.00 (2.00, 3.00)	1.00 (1.00, 2.00)[b]	1.00 (1.00, 1.00)[c]	19.335	<0.001
Nucleic acid positivity rate	1	31 (88.57)	20 (57.14)[a]	0 (0.00)[b]	1 (2.86)[c]	79.674	<0.001
	2	20 (100.00)	11 (55.00)[a]	0 (0.00)[b]	0 (0.00)[c]	58.405	<0.001
	3	20 (100.00)	16 (80.00)[a]	0 (0.00)[b]	0 (0.00)[c]	66.232	<0.001

Note: "a", "b", and "c" respectively represent the difference values between the early stage and the mid-stage, the recovery period, and 2 weeks after discharge. All of them are <0.05.

4. Discussion

COVID-19 is a new infectious disease that has erupted, with strong virulence and high infectivity, posing significant social hazards [9]. Over the past three years, the whole society has made unremitting efforts in prevention and control, diagnosis and treatment, and vaccines. It is well known that the general strategy

of Western medicine in treating COVID-19 includes [10]: monitoring laboratory indicators such as blood routine, urine routine, CRP, biochemical indicators, coagulation function, blood gas analysis, cytokines, imaging CT, and 2019-nCoV nucleic acid according to the patient's condition, even conducting bacteria and fungi identification and drug sensitivity tests. This allows for close monitoring of underlying diseases, complications, and disease progression, including virus spread, secondary bacterial or fungal infections, to determine the patient's life-threatening situation. Furthermore, treatments such as alpha-interferon nebulization inhalation, lopinavir/ritonavir and other antiviral therapies, antibiotics for evidence of secondary bacterial or fungal infection, nasal cannula, mask ventilation, and oxygen therapy for severe cases, high-flow nasal oxygen therapy, non-invasive and invasive mechanical ventilation for critically ill patients, and corticosteroid treatment are also used frequently. However, many studies have confirmed that Western medicine treatments have some disadvantages [11]. Traditional Chinese medicine diagnosis and treatment have also been ongoing in the process of dialectical treatment. For mild or severe COVID-19 patients, regardless of whether the tongue coating is yellowish or whitish, it always shows a thick, greasy and rotten coating, indicating a very heavy turbid-dampness condition. In fact, patients' constitution, age, and underlying conditions vary, and the severity of infection by epidemic pathogenic factors differs, therefore the patterns (syndromes) may vary. Damaging Yang (vital energy) is the main line of syndrome differentiation [12]. There have also been COVID-19 cases that underwent infusion therapy during hospitalization, which masked the characteristics of dampness transforming into dryness and Yin damage, and presented with severe symptoms such as dyspnea and hemoptysis, suggesting poor prognosis. It is necessary to combine imaging CT or blood gas analysis to assess and diagnose the condition. COVID-19 belongs to the category of "dampness-toxin epidemic" in traditional Chinese medicine, specifically the accumulation of dampness-toxin generating heat, progressing to simultaneous lung and intestinal diseases, and retrogressing to pericardial infection [13]. In the early stage, there may be superficial evidence (symptoms on the body surface), with a focus on dispelling pathogenic factors. Bleeding in the progressive and critical stages is caused by dampness-toxin damaging the collaterals. Damp-heat is commonly seen in critical cases, with dampness-toxin transforming into heat and damaging the collaterals, invading the lungs and spleen [14]. Chinese patent medicines like Lianhua Qingwen, Huoxiang Zhengqi, Fangfeng Tongsheng can be used [15].

At the beginning of the epidemic, the use of Qingfei Paidu Decoction in the combined treatment of COVID-19 with traditional Chinese and Western medicine played an important role. Tang Dezhi *et al.* [16] believed that "epidemic pathogens" of ordinary elderly patients are prone to "subdue the lesser yin," so kidney tonifying and pathogen-dispelling treatment should be used. For elderly patients in the recovery period, the "epidemic pathogens" have been eliminated,

so the focus should be on kidney tonification and recovery. For severe and critically ill elderly patients, caution should be exercised in combined treatment with traditional Chinese and Western medicine, but both approaches can prevent the disease from deteriorating. The facts have proven that the combination of traditional Chinese and Western medicine can more effectively treat COVID-19, with the advantages of early prevention, alleviation of symptoms, shortening of fever duration, reduction of sequelae and hormone usage, thereby reducing the side effects of Western medicine [17] [18]. The results of this study showed that among the monitored laboratory indicators of 75 patients, PLT, LYMGH, and K^+ were low during the early and middle stages of the disease, and slowly increased during the recovery stage, with the most significant change observed in the K^+ level in Group 1; CRP, TBIL, IBTL, and DHIL increased from the early stage to the middle stage and slowly decreased during the recovery stage, with significant changes observed in Groups 1 and 2; TP and ALB decreased in the early stage and slowly increased during the recovery stage, with the most significant change observed in Group 1; LDH, CK, CK-MB, and α-HBDH decreased from the early stage to the recovery stage, with significant changes observed in all three groups; AMY decreased slightly in the early stage and increased during the recovery stage, with significant changes observed in Groups 1 and 2. These findings indicate that PLT and LYMGH in the blood index are quickly consumed and low, and the electrolyte imbalance presents as low K+ during the progression of the disease. During the development from the early stage to the middle stage, there is liver dysfunction and myocardial cell damage, leading to increased inflammatory indicators such as CRP. After treatment with traditional Chinese and Western medicine, most of the laboratory indicators returned to normal levels. The difference is that AMY continues to increase in the recovery stage, which may be related to previous multiple functional impairments, which need further analysis and research. It is consistent with many reports [19] [20] [21]. This study also suggests that the combined treatment scheme of Chinese herbal formula plus Lianhua Qingwen Capsule is superior to the scheme of using pure Chinese herbal formulas, and may also be superior to the scheme of using Chinese herbal formulas plus Xuebijing for combined treatment. However, this scheme mainly applies to elderly patients with a high incidence of underlying diseases such as hypertension and diabetes, who are also prone to complications such as pneumonia, liver dysfunction, and electrolyte imbalance, so there is a lack of comparability. In terms of drug safety, nearly one-third of patients had abnormal gastrointestinal systems, and some had abnormal liver function and skin rashes, which were confirmed to be adverse reactions caused by antiviral drugs. The Western medicine used is widely recognized as having minimal toxic and side effects, with adverse reactions already known. The Chinese medicine treatment plan provides individualized Chinese herbal formulas, and the formulas used have been verified to have reasonable compatibility and minimal toxic and side effects. In terms of treatment effectiveness, the CT score and positive

rate of nucleic acid decreased significantly from the early stage to the middle stage; in the treatment outcome, 19 cases transformed from mild to moderate, and 3 cases transformed from moderate to severe, accounting for 29.33%; at discharge, 66 cases (88.00%) were cured, 9 cases improved (with complications), no deaths occurred, but 4 cases had a recurrence within four weeks after discharge; the median time from symptom onset to treatment, conversion of nucleic acid to negative, and length of hospital stay were 2 days, 9 days, and 16 days, respectively. This is consistent with related reports [12] [13] [14], which further confirm the efficacy of the treatment plan.

The purpose of medicine is not only to focus on prolonging the quantity of life (lifespan) and the disease itself, but also to prioritize the quality of life. Only when the quality of life improves can COVID-19 patients truly regain their confidence and successfully reintegrate into society. The results of this study showed that the scores for daily activity limitations, respiratory difficulties, and psychological/emotional symptoms decreased significantly from the early and middle stages of the disease to the recovery period. This indicates that the closed isolation treatment for COVID-19 patients has caused significant stress, impacting the quality of life of patients in the early and middle stages. This is mainly reflected in higher scores for the three quality of life assessments and the overall score before treatment. After a combination of Chinese and Western treatments, the quality of life improved significantly, with a decrease in total scores and psychological/emotional assessment scores in the treatment group of 75 patients. These results are highly consistent with the findings reported in references [22] [23].

5. Conclusion

In summary, the combined treatment of traditional Chinese and Western medicine has a significant impact on various laboratory indicators such as PLT, LYMGH, CRP, TBIL, IBTL, DHIL, TP, ALB, K^+, AG, LDH, CK, CK-MB, α-HBDH, AMY, etc., in COVID-19 patients, and can improve their quality of life. Through in-depth research on the comprehensive intervention of combined traditional Chinese and Western medicine treatment for COVID-19 patients and their prognosis, the effectiveness and safety of the COVID-19 treatment plan have been verified. It has also clarified the appropriate combined traditional Chinese and Western medicine treatment plan for COVID-19 in the local context and can improve the level of diagnosis and treatment for unknown new infectious diseases.

6. Limitations of the Study

The number of COVID-19 cases collected in this study is limited, and the data collection spanned over two years. Although the testing was conducted under quality control, it was not completed within the same time frame, so the study has certain limitations.

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Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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