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Original Article

Clinical observation of Danlou tablets combined with aspirin for phlegm and blood stasis syndrome in coronary heart disease: impact on related serum factors

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Abstract: Objectives: To investigate the effect of Danlou tablets combined with aspirin for treating phlegm and blood stasis syndrome in coronary heart disease (CHD). Methods: This study is a retrospective study, a total of 120 patients with phlegm and blood stasis syndrome with CHD were randomly assigned to either a control group (aspirin, 100 mg, once daily) or an observation group (Danlou tablets, 1.5 g, three times daily; aspirin, 100 mg, once daily) at a 1:1 ratio. Treatment was administered for 28 consecutive days. Pre- and post-treatment assessments included lipid profiles, hemorheology, inflammatory markers, serum phospholipase A2 ($sPLA_2$), lipoprotein-associated phospholipase 2 ($LP\text{-}PLA_2$), oxidized low-density lipoprotein (ox-LDL), monocyte chemotactic protein-1 (MCP-1), clinical efficacy, adverse events, and changes in TCM syndrome scores. Results: After 1 month of treatment, the observation group showed a significantly higher overall clinical efficacy rate (P = 0.038) compared to the control group. Post-treatment levels of $sPLA_2$, $LP\text{-}PLA_2$, ox-LDL, and MCP-1 decreased in both groups, with significantly lower levels in the observation group (P = 0.001, P = 0.013, P = 0.015). Additionally, reductions in small dense low-density lipoprotein cholesterol (sdLDL-C), total cholesterol (TC), low-density lipoprotein cholesterol (LDL-C), fibrinogen, erythrocyte volume, tumor necrosis factor-α (TNF-α), and interleukin-6 (IL-6) were significantly greater in the observation group than in the control group (P = 0.023, P = 0.023, P = 0.014, P = 0.012, P = 0.032, P = 0.019, P = 0.030). Conclusions: The combination of Danlou tablets and aspirin significantly improves clinical symptoms in CHD patients with phlegm and blood stasis syndrome, reduces serum $sPLA_2$, $LP\text{-}PLA_2$, and ox-LDL levels, and inhibits inflammatory responses, suggesting this combination could provide a beneficial adjunctive therapy for managing CHD in these patients. This study serves as a reference for further research on Danlou tablets' role in CHD.

Keywords: Danlou tablets, coronary heart disease, phlegm and blood stasis syndrome, aspirin, related serum factors

Introduction

Coronary heart disease (CHD) is a prevalent cardiovascular disorder characterized by atherosclerotic lesions in coronary arteries, which lead to lumen stenosis, occlusion, and consequently to myocardial ischemia, hypoxia, and potentially tissue necrosis. CHD is a significant cause of cardiovascular-related mortality, with its mechanism primarily linked to inflammation and lipid metabolism disorders [1, 2].

Phlegm and blood stasis syndrome in CHD is marked by impaired blood flow due to phlegm and stasis accumulation. Common drugs for this condition include aspirin, an antiplatelet agent that improves ischemic symptoms and relieves pain, and atorvastatin, a lipid-lowering drug that stabilizes plaques to reduce the risks of myocardial and cerebral infarctions. However, long-term aspirin use may lead to adverse effects, such as rheumatic fever and arthritis [3], while atorvastatin can cause side effects like eructation, nightmares, and myalgia [4]. Traditional Chinese medicine (TCM) has demonstrated lipid-lowering effects with fewer adverse reactions, complementing Western medicine in treating CHD [5]. TCM views blood stasis as changes in blood rheology, while

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phlegm turbidity corresponds to lipid metabolism disorders [6]. These interwoven mechanisms give rise to CHD with phlegm and blood stasis syndrome [7].

Stable angina pectoris is a typical manifestation in CHD patients, often treated with a combination of lipid-regulating drugs and aspirin, though efficacy remains suboptimal in some cases. Danlou tablets, commonly used in TCM for phlegm and blood stasis-type CHD, are known for their effects in relieving chest discomfort, resolving blood stasis, and removing phlegm. Although several studies explore combining TCM and Western medicine for CHD, research on Danlou tablets with aspirin is limited, and its clinical efficacy and safety remain uncertain. To evaluate this combination, we reviewed 60 cases of CHD with phlegm and blood stasis syndrome treated at our hospital from 2019 to 2022. Among these, 30 patients received conventional treatments, including statins, nitrates, platelet inhibitors, β-blockers, and ACE inhibitors, while the other 30 received Danlou tablets combined with aspirin, as reported here.

Materials and methods

Research subjects

General information

This study is a retrospective study including patients with stable CHD who met the inclusion criteria and were admitted to our hospital between January 2019 and December 2022. A total of 120 patients were selected, with 60 patients randomly assigned to the control group and 60 to the observation group using a random number table. The study complies with the Declaration of Helsinki [8] and was approved by the Ethics Committee of the Emergency Department, Dongying People's Hospital (Approval number: 2024-056).

Diagnosis, inclusion, and exclusion criteria

Diagnostic criteria: The diagnostic criteria for phlegm and blood stasis syndrome in CHD were based on the "Diagnostic Standards for Blood Stasis Syndrome of CHD" for Western medicine and the "Diagnostic Efficacy Standards for TCM Diseases" for traditional Chinese medicine (TCM).

Inclusion criteria: Patients met the diagnostic criteria for both TCM and Western medicine, and were over 18 years of age.

Exclusion criteria: Exclusion criteria included severe dysfunction in the liver, lungs, kidneys, or other organs; malignant tumors; serious infectious diseases; severe arrhythmias; valvular heart disease; cardiomyopathy; history of coronary intervention; hypersensitivity to study medications; and pregnancy or lactation.

Treatment regimen

Both groups received standard treatment, including statins, nitrates, platelet inhibitors, β-blockers, and angiotensin-converting enzyme (ACE) inhibitors. The control group was given aspirin (100 mg, once daily, Bayer Healthcare Ltd.), while the observation group received Danlou tablets (1.5 g, three times daily, Jilin Cornell Pharmaceutical Co., Ltd., 0.3 g/tablet) in addition to aspirin (100 mg, once daily). Treatment duration was 28 days for both groups.

Observation indicators

$sPLA_2$, $LP\text{-}PLA_2$, ox-LDL, MCP-1 levels

Fasting peripheral venous blood (3 ml) was collected before and after treatment into EDTA-K2 anticoagulant tubes. After centrifugation at 2500 rpm for 5 minutes, serum levels of $sPLA_2$ (PLA2G2A Polyclonal Antibody, E-AB-19125, Elabscience, Wuhan Elite Biotechnology Co., Ltd., China), $LP\text{-}PLA_2$ (Human $LpPLA_2$ Antibody Pair Set, E-KAB-0051, Elabscience, Wuhan Elite Biotechnology Co., Ltd., China), ox-LDL (OLR1 Polyclonal Antibody, E-AB-10934, Elabscience, Wuhan Elite Biotechnology Co., Ltd., China), and MCP-1 (Human MCP-1 Antibody Pair Set, E-KAB-0052, Elabscience, Wuhan Elite Biotechnology Co., Ltd., China) were measured by radioimmunoassay (SN-695B, Intelligent Radioimmunity 7 Measuring Instrument, Shanghai Atomic Nuclear Research Institute, China).

Blood lipid indicators

Fasting venous blood samples were also used to measure blood lipid profiles, including total cholesterol (TC), triglycerides (TG), low-density

Table 1. Comparison of baseline data

Group	Control group (n = 60)	Observation group (n = 60)	t/χ^2	P
Gender (male)	33	34	0.033	0.854
age	66.89±15.34	67.18±16.91	0.112	0.911
Course of disease	5.31±1.43	5.35±1.61	0.144	0.886

lipoprotein cholesterol (LDL-C), and high-density lipoprotein cholesterol (HDL-C) with an automated biochemical analyzer (Mindray BS800, Mindray, China).

Inflammatory factors

Inflammatory markers, including IL-6 and TNF-α, were measured by enzyme-linked immunosorbent assay (ELISA) using a Varioskan LUX multi-function microplate reader (Thermo Fisher Scientific, China). IL-6 was detected with a Human IL-6 ELISA Kit (E-EL-H6156, Elabscience, Wuhan Elite Biotechnology Co., Ltd., China), and TNF-α with a Human TNF-α ELISA Kit (E-EL-H0109, Elabscience, Wuhan Elite Biotechnology Co., Ltd., China).

Electrocardiographic indicators

Electrocardiographic changes were observed and compared in both groups before and after treatment. Parameters included the number of T-wave inversions, T-wave flattening, and ST-segment depressions, as measured by a multiparameter monitor (PM12E, Likang Biomedical Technology Holdings Co., Ltd., China).

Treatment outcomes

Clinical efficacy

Clinical efficacy was assessed according to the "Guiding Principles for Clinical Research of TCM New Drugs" [9]. Outcomes were classified as: Significant: The patient's symptoms significantly improved. Effective: The patient's symptoms showed noticeable improvement. Ineffective: No improvement in symptoms, with persistent abnormalities in electrocardiogram (ECG) indicators.

The main outcome was overall response rate, calculated as:

Overall response rate = (significant + effective cases)/100 × 100%.

Main symptoms of TCM syndrome scores

Symptom severity was evaluated pre-treatment, and on the day following the treatment course. The phlegm and blood stasis syndrome score included factors such as chest pain, chest tightness, frequency and duration of chest tightness, shortness of breath, palpitations, fatigue, and spontaneous sweating. Each symptom was scored on a scale of 0-3, with higher scores indicating more severe symptoms.

Adverse reactions

Adverse reactions were monitored during treatment, including dizziness, fatigue, nausea, and constipation. Cardiac safety was evaluated by monitoring ECG, cardiac enzyme levels, and electrolyte levels [10, 11].

Statistical analysis

Data were analyzed using SPSS 17.0 (SPSS Inc., Chicago, IL). Continuous data are presented as mean ± standard deviation ($\bar{x}\pm s$), with intra-group comparisons conducted using paired-sample t-tests and inter-group comparisons using independent-sample t-tests. Categorical data are shown as frequencies and percentages (%) and compared between groups using the χ^2 test. A *P*-value of < 0.05 was considered statistically significant. Power analysis indicated that a sample size of 60 patients per group would yield 92% power ($\alpha = 0.05$, two-sided, equal variance), assuming a pooled standard deviation of 20%.

Results

General information

The control group was comprised of 60 patients (27 females, 33 males), aged 43 to 79 years (66.89±15.34 years), with disease duration ranging from 1 to 9 years (5.31±1.43 years). The observation group also included 60 patients (26 females, 34 males), aged 42 to 81 years (67.18±16.91 years), with disease duration from 1 to 10 years (5.35±1.61 years). No significant differences in baseline characteristics were observed between the two groups (P = 0.854, P = 0.911, P = 0.886; **Table 1**), indicating comparability.

Table 2. Comparison of clinical treatment effects between the two groups

Group	Significant effect	Effective	Invalid	Total effective rate
Control group (n = 60)	27 (45.0)	24 (0.40)	9 (15.0)	51 (85.0%)
Observation group (n = 60)	37 (61.67)	20 (33.33)	3 (5.0)	57 (95.0%)
χ^2				2.080
P				0.038

Table 3. Comparison of electrocardiogram indicators before and after treatment

Group		Control group (n = 60)	Observation group (n = 60)	t	P
T-wave inverted leads	Before treatment	2.41±1.29	2.51±1.28	0.426	0.671
	After treatment	2.01±0.42*	1.81±0.86*,#	2.428	0.016
T-wave low flat leads	Before treatment	2.42±1.25	2.43±1.15	0.046	0.964
	After treatment	2.07±0.19*	1.86±0.92*,#	5.68	0.010
ST segment down shifted leads	Before treatment	4.71±0.65	4.72±0.72	0.079	0.937
	After treatment	3.42±0.68*	3.19±0.46*,#	6.699	0.032

Note: Compared with before treatment, *P < 0.05. After treatment, compared with the control group, #P < 0.05.

Table 4. Comparison of sPLA2, LP-PLA2, ox-LDL, and MCP-1 levels before and after treatment

Group		Control group (n = 60)	Observation group (n = 60)	t	P
sPLA2/(ng/mL)	Before treatment	7.03±0.98	6.99±1.08	0.213	0.832
	After treatment	5.92±0.88*	5.08±0.62*,#	6.022	0.001
LP-PLA2/(ng/mL)	Before treatment	8.91±1.77	9.04±1.46	0.439	0.662
	After treatment	7.23±1.08*	6.78±0.84*,#	2.512	0.013
ox-LDL/(ng/mL)	Before treatment	7.02±1.25	6.99±1.33	0.169	0.865
	After treatment	5.74±0.94*	5.39±0.57*,#	2.466	0.015

Note: Compared with before treatment, *P < 0.05. After treatment, compared with the control group, #P < 0.05. sPLA2: inflammatory factors, phospholipaseA2; LP-PLA2: lipoprotein-associated phospholipase 2; ox-LDL: oxidized low den-sity lipoprotein; MCP-1: monocyte chemotactic protein-1.

Comparison of clinical efficacy

The observation group showed a significantly higher overall response rate than the control group (95.0% vs. 85.0%, χ^2 = 2.080, P = 0.038; **Table 2**).

Comparison of ECG indicators before and after treatment

Before treatment, there was no significant difference between the two groups in the number of T-wave inversions, T-wave flattening, or ST-segment depression leads (P = 0.671, P = 0.964, P = 0.937). Post-treatment, both groups showed significant reductions in these ECG indicators, with *P*-values of 0.024, 0.034, and 0.000 for the control group and 0.001, 0.003, and 0.000 for the observation group. The observation group demonstrated a significantly greater reduction than the control group (P = 0.016, P = 0.010, P = 0.032; **Table 3**).

Comparison of $sPLA_2$, $LP\text{-}PLA_2$, ox-LDL, and MCP-1 levels before and after treatment

There was no significant difference between groups in baseline levels of $sPLA_2$, $LP\text{-}PLA_2$, or ox-LDL (P = 0.832, P = 0.662, P = 0.865). After treatment, serum levels in both groups decreased significantly (all P = 0.000), with the observation group showing significantly lower levels than the control group (P = 0.001, P = 0.013, P = 0.015; **Table 4**).

Comparison of blood lipid indicators before and after treatment

No differences in blood lipid levels were observed between the groups at baseline (all P >

Table 5. Comparison of blood lipid indicators before and after treatment

Group		Control group (n = 60)	Observation group (n = 60)	t	P
TC	Before treatment	4.78±1.52	4.56±1.49	0.801	0.425
	After treatment	4.29±0.92*	3.92±0.84*,#	2.301	0.023
TG	Before treatment	1.60±0.13	1.58±0.19	0.673	0.502
	After treatment	1.49±0.29*	1.37±0.28*	2.306	0.023
LDL-C	Before treatment	2.76±0.91	3.01±1.01	1.424	0.157
	After treatment	2.42±0.92*	2.03±0.79*,#	3.768	0.014
HDL-C	Before treatment	1.10±0.34	1.09±0.29	0.173	0.863
	After treatment	1.28±0.37*	1.20±0.31*	2.568	0.012
SdLDL-C	Before treatment	1.13±0.44	1.10±0.45	0.369	0.713
	After treatment	0.99±0.24*	0.88±0.31*,#	2.13	0.032

Note: Compared with before treatment, *P < 0.05. After treatment, compared with the control group, #P < 0.05. sdLDL-C: small dense low-density lipoprotein; TC: total cholesterol; LDL-C: low-density lipoprotein; TG: triglyceride; HDL-C: high-density lipoprotein cholesterol.

Table 6. Comparison of inflammatory factors before and after treatment

Group		Control group (n = 60)	Observation group (n = 60)	t	P
TNF-α	Before treatment	26.07±6.01	26.01±5.77	0.056	0.956
	After treatment	17.18±2.14*	16.41±1.31*,#	2.377	0.019
IL-6	Before treatment	19.62±6.02	19.71±6.47	0.079	0.937
	After treatment	12.08±1.78*	11.31±2.04*,#	2.203	0.030

Note: Compared with before treatment, *P < 0.05. After treatment, compared with the control group, #P < 0.05. TNF-α: tumor necrosis factor-α; IL-6: interleukin-6.

0.05). Post-treatment, both groups showed significant improvements in blood lipid levels (control group: P = 0.035, P = 0.008, P = 0.044, P = 0.006, P = 0.032; observation group: P = 0.004, P = 0.000, P = 0.000, P = 0.047, P = 0.002). The improvements were significantly greater in the observation group (P = 0.023, P = 0.023, P = 0.014, P = 0.012, P = 0.032; **Table 5**).

Comparison of inflammatory factor levels before and after treatment

Baseline TNF-α and IL-6 levels were similar between groups (both P > 0.05). Both groups showed significant post-treatment reductions in these inflammatory markers (control group: both P = 0.000; observation group: both P = 0.000), with the observation group experiencing a more pronounced reduction (P = 0.019, P = 0.030; **Table 6**).

Comparison of hemorheological levels before and after treatment

Prior to treatment, no significant differences in whole blood high shear viscosity, low shear viscosity, fibrinogen (FIB), or hematocrit were observed between the groups (P = 0.594, P = 0.729, P = 0.328, P = 0.877). Following treatment, both groups showed reductions in these indicators, with *P*-values of 0.053, 0.229, 0.000, and 0.000 for the control group and 0.525, 0.000, 0.000, and 0.000 for the observation group. The observation group exhibited a significantly greater decrease than the control group (P = 0.012, P = 0.039, P = 0.046, P = 0.047; **Table 7**).

Comparison of TCM symptom scores before and after treatment

Baseline TCM symptom scores did not differ significantly between groups (P = 0.234). Post-treatment, TCM symptom scores were significantly reduced in both groups (P = 0.000), with the observation group showing significantly lower scores than the control group (P = 0.000; **Table 8**).

Comparison of adverse reactions

In the observation group, dizziness occurred in 3 cases (5.00%) and nausea in 2 cases

Table 7. Comparison of hemorheological levels before and after treatment

Group		Control group (n = 60)	Observation group (n = 60)	t	P
Fibrinofen/(g/L)	Before treatment	3.68±0.43	3.72±0.39	0.534	0.594
	After treatment	3.54±0.35	3.68±0.29	2.556	0.012
Hematocrit	Before treatment	0.45±0.04	0.46±0.04	0.346	0.729
	After treatment	0.44±0.05	0.40±0.03*,#	2.078	0.039
Whole blood high shear viscosity/(mPa·s)	Before treatment	5.62±0.81	5.38±0.72	0.981	0.328
	After treatment	4.14±1.02*	3.69±0.93*,#	2.008	0.046
Whole blood low shear viscosity/(mPa·s)	Before treatment	9.42±1.05	9.45±1.08	0.154	0.877
	After treatment	8.05±1.25*	7.65±0.91*,#	2.004	0.047

Note: Compared with before treatment, *P < 0.05. After treatment, compared with the control group, #P < 0.05.

Table 8. TCM symptom scores before and after treatment

Group	n	Before treatment	After treatment
Observation group	60	14.15±1.48	6.74±2.78*
Control group	60	14.42±0.93	9.44±2.49*,#
t		1.196	5.604
P		0.234	0.000

Note: Compared with before treatment, *P < 0.05. After treatment, compared with the control group, #P < 0.05.

Table 9. Comparison of adverse reactions

Group	n	Dizziness	Nausea	Total adverse reaction rate	χ^2	P
Observation group	60	3	2	8.33	4.183	0.041
Control group	60	8	5	21.67%		

(3.33%), for a total adverse reaction rate of 8.33%. In the control group, dizziness occurred in 8 cases (13.33%) and nausea in 5 cases (8.33%), resulting in an adverse reaction rate of 21.67%. The observation group had a lower adverse reaction rate than the control group (χ^2 = 4.183, P = 0.041; **Table 9**).

Discussion

The primary approach in Western medicine for treating CHD involves antiplatelet therapy, anti-inflammatory drugs, and lipid-lowering agents. However, individual variations among patients with CHD mean that some may not achieve optimal outcomes with Western medicine alone. Furthermore, increasing the dosage or prolonging treatment duration with Western medications can compromise medication safety. As a result, there is an urgent need for safe adjuvant treatments for CHD. In recent years, combining TCM with Western medicine in clinical practice has demonstrated promising advantages. During the acute phase, TCM adjuvant therapy can rapidly alleviate symptoms, while in the stable phase, it effectively manages risk factors like lipid reduction, anticoagulation, inflammation control, vascular protection, and physical strength improvement. TCM is associated with a low cost, minimal adverse effects, and negligible risk of liver or kidney damage, reducing the side effects of long-term Western medication and enhancing overall quality of life for CHD patients [12].

For patients with CHD and phlegm and blood stasis syndrome, adding customized TCM formulations based on principles of clearing collaterals, resolving phlegm, promoting blood circulation, and dissipating stasis may facilitate complementary action between TCM and Western medicine. This combined approach enables treatment through multiple pathways, reducing the risk of adverse effects from individual variability and enhancing medication safety [13]. Pharmacological studies have shown that Danlou tablets not only regulate blood lipids and stabilize plaques but also improve hypercoagulability and protect vascular endothelium [14]. This multi-faceted protection can support ischemic and hypoxic myocardial tissue, even in cases of tissue necrosis.

Danlou tablets, a TCM preparation, contain key ingredients such as Gualou peel, Chuanxiong, Danshen, Zexie, Xiebai, and Huangqi, which help to clear the chest, remove phlegm, promote blood flow, and reduce blood stasis, showing notable therapeutic effects for coronary heart disease with phlegm and stasis [13]. The formula's core components, such as Danshen, Huangqi, Gualou peel, and Chuanxiong, help to clear blood vessels, warm the heart, stabilize heart function, and calm the mind [15]. Gualou peel aids in phlegm reduction and Qi regulation, while Danshen relieves blood stasis and alleviates pain. Xiebai promotes Qi flow and dissolves nodules, red peony removes blood stasis and stimulates blood circulation, Yujin alleviates depression, Chuanxiong relieves pain, Kudzu root lifts Yang and relaxes spasms, and Huangqi strengthens Qi and consolidates the exterior, all serving as primary ingredients.

Rhizoma Drynariae is used to support kidney function and enhance blood flow, while Alisma orientalis promotes diuresis and lowers blood lipids, acting as adjunctive agents. The synergy of these herbs aids in clearing blockages, regulating Qi, alleviating pain, removing phlegm, and promoting blood flow, facilitating circulation through the meridians. Modern pharmacological research has shown [16] that the scientifically designed formulation of Danlou tablets can effectively lower lipid levels, improve endothelial function, and thus reduce angina symptoms. Additionally, Danlou tablets may reduce myocardial ischemia and reperfusion injury by modulating cardiomyocyte apoptosis, lowering the incidence of these injuries [16-18]. Clinical studies by Yang et al. [17] support that Danlou tablets can significantly improve TCM clinical symptoms and therapeutic outcomes in CHD.

This study found that the total clinical effectiveness rate (95.00%) for the observation group, treated with both TCM methods-clearing collaterals, resolving phlegm, promoting blood circulation, and resolving stasis-and Western medicine, was significantly higher than that of the control group treated with Western medicine alone (85.00%). Potential mechanisms through which Danlou tablets reduce serum cholesterol and lipid levels may involve: (1) regulating cholesterol metabolic pathways, impacting cholesterol synthesis and inhibiting key enzymes to lower overall cholesterol production, (2) enhancing cholesterol excretion by promoting liver conversion of cholesterol to bile acids, thereby increasing bile acid excretion, and (3) influencing gene expression related to lipid metabolism, altering the synthesis and activity of proteins involved in lipid metabolism through transcriptional and translational modifications. In addition, Danlou tablets may regulate cell surface receptor function, impacting cholesterol and lipid uptake and transport, thereby reducing intracellular lipid accumulation [18-22]. This study confirmed that the total clinical effective rate (95.00%) in the observation group, which received Danlou tablets alongside Western medicine with TCM approaches like clearing collaterals, resolving phlegm, promoting blood circulation, and dispersing stasis, was significantly higher than in the control group, treated with Western medicine alone (85.00%). This combined approach effectively improved clinical symptoms, likely due to Danshen's ability to dilate coronary arteries and enhance microcirculation [23]. Aspirin also contributes by relaxing vascular smooth muscle, improving coronary blood flow, and reducing cardiac load.

Nishikura et al. [24] identified small dense LDL cholesterol (sdLDL-C) as an independent risk marker for CHD, superior to traditional risk factors like TG and HDL-C. This study's findings support that post-treatment levels of sdLDL-C, LDL-C, and TC in the observation group were lower than in the control group, indicating Danlou tablets' precise lipid-lowering effect. Danlou tablets also enhance blood rheology, reducing blood viscosity and exerting anticoagulant and anti-thrombotic effects, which help decrease the likelihood of acute cardiovascular and cerebrovascular events, increase coronary blood flow, and effectively reduce myocardial oxygen demand. Additionally, they can improve left ventricular function and pumping ability, dilate coronary arteries, increase blood flow, improve myocardial perfusion, reduce myocardial contractility, slow heart rate, and accelerate recovery, enhancing patients' quality of life.

Following the concept of combining disease and syndrome, various pathological processes interconnect. Excessive inflammatory responses can damage endothelial cells and disrupt function, affecting blood rheology, increasing

viscosity and coagulation, and promoting localized thrombosis. This illustrates a close association between inflammatory factors and phlegm-stasis syndrome in etiology, pathogenesis, and treatment. TCM, with its multi-target therapeutic benefits, addresses this through Danlou tablets' anti-inflammatory and antioxidant properties [25]. This study found significant reductions in TNF-α and IL-6 levels in both groups post-treatment, with levels in the observation group significantly lower than those in the control group. Integrating TCM and modern research, phlegm turbidity and blood stasis are both causative factors and pathological products in CHD, rooted in inflammation, oxidative stress, endothelial dysfunction, and altered blood rheology.

Although this clinical study was conducted with a randomized control design, the treatment cycle was short, and limitations from various factors restricted long-term follow-up. Further studies are needed to assess the impact of these treatments on long-term prognosis.

Conclusions

Coronary heart disease remains one of the most common chronic diseases in clinical settings. Early, accurate diagnosis and standardized treatment are essential for patient prognosis and quality of life. While the advantages of TCM in CHD treatment are evident, there are still limitations: small sample sizes in clinical research and insufficient evidence. Future studies should focus on large, multi-center clinical trials to identify the most effective treatment prescriptions.

Disclosure of conflict of interest

None.

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