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Clinical Efficacy Observation of Fire Needle Short-term Intensive Treatment on Patients with Nonalcoholic Fatty Liver Disease (Cold-Dampness Constitution Type)

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Abstract: ***Objective**: To evaluate the short-term clinical efficacy and safety of a 10-day inpatient intensive fire needle treatment regimen on patients with nonalcoholic fatty liver disease (NAFLD) of cold-dampness constitution. **Methods**: A retrospective cohort study design was adopted. Medical records of NAFLD inpatients from the Hepatology Department of our hospital between September 2023 and September 2025 were collected. Based on treatment records, patients were divided into a fire needle group and a conventional acupuncture group, with 50 cases in each group. The same basic acupoints were selected for both groups (Zusanli, Fenglong, Sanyinjiao, Taichong, Zhongwan). The conventional acupuncture group received treatment once daily; the fire needle group received additional fire needle therapy every other day (total of 5 times over 10 days) based on daily acupuncture. The treatment course for both groups was 10 days. The primary outcome was the improvement rate of liver ultrasound fatty liver grading before and after treatment. Secondary outcomes included changes in ALT, AST, TG levels, the reduction rate of Traditional Chinese Medicine (TCM) syndrome scores, and symptom scores related to cold-dampness constitution. **Results**: After 10 days of treatment, the ultrasound improvement rate in the fire needle group (86.0%) was significantly higher than that in the conventional acupuncture group (70.0%) (P<0.05). The fire needle group was superior to the conventional acupuncture group in reducing ALT, AST, TG levels and the reduction rate of TCM syndrome scores (all P<0.05). In the cold-dampness constitution subgroup, the fire needle group showed more significant improvements in symptoms such as fear of cold, cold limbs, and loose stools (P<0.01). No serious adverse events occurred during the treatment period. **Conclusion**: A 10-day inpatient intensive fire needle treatment can rapidly and safely improve imaging findings, biochemical indicators, and clinical symptoms in NAFLD patients, with definite short-term efficacy. Particularly for patients with cold-dampness constitution, it demonstrates the syndrome differentiation advantages of warming Yang, dissipating cold, resolving Dampness, and unblocking collaterals. It can serve as an effective external TCM therapy for short-term comprehensive inpatient treatment.*

Keywords: Fire Needle, Nonalcoholic Fatty Liver Disease, Cold-Dampness Constitution, Inpatient Treatment, Short-term Efficacy, Retrospective Cohort Study.

1. Introduction

Nonalcoholic fatty liver disease (NAFLD) is a metabolic stress-induced liver injury closely related to insulin resistance and genetic susceptibility. Its pathological feature is excessive fat deposition in hepatocytes (hepatic steatosis > 5%), excluding alcohol and other definite liver-damaging factors [1]. With the global prevalence of obesity and metabolic syndrome, NAFLD has become the most common chronic liver disease, affecting approximately 25% of the global population, and its incidence continues to rise [2]. In China, the prevalence of NAFLD is equally severe, posing a major public health problem [3]. The disease spectrum is broad, ranging from simple hepatic steatosis (NAFL) to nonalcoholic steatohepatitis (NASH), and further progressing to liver fibrosis, cirrhosis, ultimately increasing the risk of hepatocellular carcinoma and liver failure. Simultaneously, it is closely associated with systemic metabolic disorders such as cardiovascular disease and type 2 diabetes, significantly increasing all-cause mortality [4-5].

The pathogenesis of NAFLD is complex. The currently accepted "multiple-hit" hypothesis identifies insulin resistance as a core initiating factor, subsequently triggering a series of pathological processes including hepatic lipid metabolism disorders, oxidative stress, mitochondrial dysfunction, endoplasmic reticulum stress, and gut microbiota dysbiosis, ultimately leading to hepatocyte injury, inflammation, and fibrosis [6]. Despite its significant disease burden, Western medical treatment for NAFLD still faces substantial challenges. Current first-line therapy is lifestyle intervention (diet control and exercise); however, patient long-term compliance is poor, and efficacy is difficult to maintain [7]. Approved pharmacotherapy options are limited, and some drugs have side effects or uncertain efficacy. For patients requiring hospitalization due to significant liver function abnormalities or accompanying acute metabolic disorders, achieving rapid and effective intervention within the limited hospital stay remains a clinical practice difficulty [8].

Although "nonalcoholic fatty liver disease" is not a named entity in TCM, based on its clinical manifestations, it is often categorized under patterns like "hypochondriac pain," "accumulation-gathering," "phlegm turbidity," or "fatty qi." The core pathogenesis is generally attributed to liver qi stagnation and spleen dysfunction, leading to the internal generation of phlegm-dampness and blood stasis, obstructing the liver collaterals, and over time forming "phlegm-stasis binding" pattern [9]. Among clinical syndrome differentiations, the cold-dampness internal accumulation type is a common and distinctive category. Such patients often

have congenital deficiencies or acquired dietary/labor imbalances damaging spleen and kidney yang qi, leading to loss of warming function, failure to transform water-dampness, and stagnation of cold-dampness pathogens in the liver channel collaterals. Common clinical manifestations include fear of cold, cold limbs, epigastric and abdominal fullness, sticky mouth sensation, loose stools, pale and enlarged tongue body, white, glossy or greasy tongue coating, deep, slow or soggy, slow pulse [10]. For such "yin patterns" and "cold patterns," conventional oral medications or standard acupuncture therapy often lack sufficient power to warm yang and dissipate cold, resulting in relatively slow onset of action.

Fire needle therapy, known in ancient times as "燔针" (branding needle) or "焠刺" (quenching needling), is a distinctive TCM external therapy. It involves heating a special needle until red-hot and then swiftly inserting it into acupoints or specific areas, perfectly integrating the mechanical stimulation of acupuncture with the thermal effect of moxibustion. It possesses unique advantages of potent and specific action, combined warming and unblocking, dissipating cold and removing dampness, and resolving stasis and dispersing nodules [11-12]. The instantaneous high temperature generated can directly reach the affected area, producing a strong warming and unblocking effect, rapidly revitalizing yang qi, dispelling stagnant cold-dampness, and dredging obstructed liver collaterals. Theoretically, it holds the potential for "opening the door to expel pathogens" and directly targeting the pathogenesis for NAFLD of cold-dampness constitution.

However, reviewing existing literature reveals that clinical research on acupuncture for NAFLD primarily focuses on long-term outpatient courses (typically ≥8 weeks) to observe its progressive lipid-regulating and liver-protective effects [13-14]. These studies fail to adequately address a pressing clinical question: within a typical short-term hospitalization period (usually 10-14 days), can strong stimulating therapies like fire needle achieve clinically meaningful short-term improvements? What are its short-term efficacy and safety? Particularly for patients with cold-dampness constitution, can the "warming" property of fire needle demonstrate more significant syndrome differentiation therapeutic advantages in the short term? Currently, specific research addressing this question is lacking.

Therefore, to fill this clinical research gap and optimize comprehensive treatment plans for hospitalized NAFLD patients, this study aims to objectively evaluate the short-term efficacy and safety of a 10-day intensive fire needle treatment regimen for hospitalized NAFLD patients through a retrospective cohort analysis, with a focus on exploring its value in syndrome differentiation and treatment for the cold-dampness constitution subgroup. This will provide evidence-based support for the application of TCM external therapies in short-term intensive inpatient management.

2. Materials and Methods

2.1 Study Design

This study is a single-center, retrospective, observational cohort study, strictly designed, implemented, and reported following the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement.

2.2 Study Subjects and Data Source

Using the hospital's electronic medical record system, we retrospectively searched for medical records of adult patients hospitalized in the Hepatology Department with a primary diagnosis including "Nonalcoholic fatty liver disease" (ICD-10 code: K76.0) between September 1, 2023, and September 30, 2025.

2.3 Diagnostic and Judgement Criteria

Western Medicine Diagnostic Criteria: Conformed to the diagnostic criteria in the "Guidelines for the Prevention and Treatment of Nonalcoholic Fatty Liver Disease (2018 Updated Version)" [15], with fatty liver grade (mild, moderate, severe) confirmed by abdominal ultrasound examination during hospitalization.

TCM Constitution Judgement Criteria: Based on the Traditional Chinese Medicine industry standard of the People's Republic of China, "Classification and Determination of TCM Constitutions" (ZYYXH/T157-2009) [16]. Two TCM physicians with intermediate or higher professional titles independently conducted a blind assessment of constitution using the four-examination information recorded in admission records (focusing on items such as fear of cold and preference for warmth, non-warm extremities, lack of thirst, loose stools, clear and copious urine, pale and enlarged tongue body, white, glossy or greasy coating, deep, slow or soggy, slow pulse). In case of disagreement, a third physician with a senior professional title adjudicated. Cases definitively identified as "Yang deficiency constitution" or "Phlegm-dampness constitution" accompanied by distinct cold manifestations were classified as "cold-dampness constitution."

2.4 Inclusion and Exclusion Criteria

Inclusion Criteria:

1) Age 18-70 years;

2) Met the above Western diagnostic criteria for NAFLD and TCM cold-dampness constitution judgement criteria;

3) Current hospitalization duration ≥10 days, with clear and complete records of acupuncture treatment (fire needle or conventional acupuncture) in the medical record, and actual treatment days ≥8 days;

4) Complete reports of liver function (ALT, AST), blood lipids (TG), and abdominal ultrasound examination within 24 hours of admission and on treatment day 10 or 1-2 days before discharge;

5) Standardized TCM medical records enabling reliable extraction of information required for TCM syndrome scoring.

Exclusion Criteria:

1) Co-existing liver diseases with other definite etiologies (e.g., viral hepatitis, autoimmune liver disease, Wilson's disease, etc.), or alcoholic liver disease (ethanol intake >140g/week (male) or >70g/week (female)), or established cirrhosis, hepatocellular carcinoma;

2) Complicated with severe cardiovascular or cerebrovascular diseases, renal insufficiency (eGFR <60 mL/min/1.73m²), uncontrolled diabetes mellitus (HbA1c >9%), or malignant tumors;

3) Pregnant or lactating women;

4) During hospitalization, received major treatment for acute complications (e.g., acute pancreatitis, gastrointestinal bleeding, etc.) that could interfere with NAFLD efficacy evaluation;

5) Acupuncture phobia or skin infection, damage at needling sites;

6) Key outcome indicator data missing >20%.

2.5 Grouping and Treatment Protocol

Grouping was based on explicit records in the "TCM Treatment Execution Sheet":

Conventional Acupuncture Group (Control Group):

Acupoints: Zusanli (bilateral), Fenglong (bilateral), Sanyinjiao (bilateral), Taichong (bilateral), Zhongwan. Acupoint localization followed the national standard "Nomenclature and Location of Acupuncture Points" (GB/T 12346-2021) [17].

Procedure: Patients were placed in a supine position. Acupoints were routinely disinfected. Disposable sterile acupuncture needles (0.30mm × 40mm) were used. After quick skin penetration, lifting, thrusting, and twirling manipulation with even reinforcing-reducing method was performed until deqi sensation was achieved. Needles were retained for 30 minutes. Treatment was administered once daily in the afternoon, continuously for 10 days (including weekends).

Fire Needle Group (Observation Group):

Basic Treatment: Same as conventional acupuncture group, once daily.

Fire Needle Intensive Treatment: Immediately following the initiation of needle retention, fire needle pricking was performed on the same acupoints mentioned above. A single-tip fine fire needle (Φ0.5mm × 25mm) was used. Using a 95% alcohol lamp, the anterior two-thirds of the needle body was heated in the outer flame until red-hot (approx. 800°C) and turning bright white. The operator stabilized the acupoint with the left hand, held the needle with the right hand, and swiftly, vertically pricked the red-hot needle tip into the acupoint to a depth of approximately 2-5mm (adjusted according to local muscle thickness at the acupoint), inserting and withdrawing rapidly. After needle withdrawal, the needle hole was gently pressed with a sterile dry cotton ball. Fire needle treatment was administered every other day (i.e., on hospitalization days 1, 3, 5, 7, 9), totaling 5 fire needle sessions within 10 days.

All procedures were performed by licensed physicians in our hospital with over 3 years of clinical acupuncture experience who had undergone specialized fire needle training and passed competency assessments. During hospitalization, both groups received standardized NAFLD health education from the department and, based on clinical needs, received the same basic Western medicine hepatoprotective (e.g., polyene phosphatidylcholine), lipid-lowering (e.g., fenofibrate, applicable for hypertriglyceridemia), and antioxidant (e.g., vitamin E) pharmacotherapy regimens. To ensure comparability between groups, all enrolled patients received a unified, standardized comprehensive basic treatment for NAFLD formulated by our hospital's Hepatology Department during hospitalization, referencing relevant clinical studies and guideline recommendations [5, 18].

Health Education and Lifestyle Guidance: Upon admission, standardized health education was provided by dedicated nurses, covering NAFLD disease knowledge, dietary principles (low-fat, low-sugar, moderate high-quality protein diet), and activity recommendations during hospitalization (encouraging ≥30 minutes of mild aerobic activity such as walking in corridors daily).

Basic Western Medicine Pharmacotherapy:

Hepatoprotective and Antioxidant Treatment: All patients received oral polyene phosphatidylcholine capsules (Specification: 228mg/capsule, National Drug Approval Number H20059010) for hepatoprotection, dosage: 1 capsule/time, 3 times/day; concurrently, oral vitamin E soft capsules (Specification: 0.1g/capsule, National Drug Approval Number H35020242) were administered as antioxidant adjuvant therapy, dosage: 1 capsule/time, 3 times/day. The treatment course was synchronized with the acupuncture intervention, lasting 10 days.

Lipid-lowering Treatment: If a patient's admission triglyceride (TG) level was ≥5.6 mmol/L, fenofibrate capsules (Specification: 200mg/capsule) were added for lipid-lowering, dosage: 1 capsule/time, 1 time/day.

Complication Management: For patients with underlying conditions such as hypertension or type 2 diabetes mellitus, their pre-admission medication regimens were maintained during hospitalization and recorded.

Retrospective review of medication orders for both groups confirmed no statistically significant differences (P>0.05) in the usage rates of basic medications including polyene phosphatidylcholine (Fire Needle Group 100% vs Control Group 100%, P=1.000), vitamin E (100% vs 100%, P=1.000), and fenofibrate (application rate among patients with TG≥5.6 mmol/L: Fire Needle Group 12.0% (6/50) vs Control Group 10.0% (5/50), P=0.746).

2.6 Outcome Measures

Primary Efficacy Outcome:

Short-term Improvement Rate of Liver Ultrasound: A senior ultra sonographer, blinded to group allocation, performed a blinded assessment by comparing patients' admission and day 10/discharge abdominal ultrasound images. Fatty liver grading criteria: Mild: mildly enhanced hepatic parenchymal echogenicity; Moderate: significantly enhanced hepatic parenchymal echogenicity, blurred visualization of intrahepatic vascular structures; Severe: markedly enhanced hepatic parenchymal echogenicity, posterior attenuation, inability to visualize intrahepatic vascular structures. Efficacy determination: ① Markedly Effective: Fatty liver grade decreased by ≥2 grades; ② Effective: Fatty liver grade decreased by 1 grade; ③ Ineffective: No change or worsening grade. Total improvement rate = (Markedly Effective + Effective) cases / total cases × 100%.

Secondary Efficacy Outcomes:

Changes in Biochemical Indicators: Serum ALT, AST, and TG levels were measured before and after treatment. The absolute difference (Δ value) before and after treatment was calculated for each indicator: Δ value = post-treatment value - pre-treatment value.

Reduction Rate of TCM Syndrome Score: Referring to the "Guiding Principles for Clinical Research of New Chinese Medicines" [18], a quantitative scoring scale was developed containing four core symptoms: hypochondriac distension/dull pain, fatigue and lack of strength, poor appetite and reduced food intake, epigastric and abdominal distension (each item scored 0, 1, 2, 3 points for none, mild, moderate, severe). TCM syndrome score reduction rate = [(Total score pre-treatment - Total score post-treatment) / Total score pre-treatment] × 100%.

Cold-Dampness Constitution Related Symptom Scores: Three characteristic symptoms ("fear of cold," "non-warm extremities," "loose stools") were scored individually (0-3 points), comparing the changes in scores before and after treatment between the two groups.

Safety Evaluation: Adverse events related to acupuncture treatment documented in inpatient medical records, such as local hematoma, infection, fainting during needling, burns (blisters), broken needles, etc., were recorded in detail and analyzed.

2.7 Statistical Methods

SPSS 25.0 software was used for statistical analysis. Normality of measurement data was assessed using the Shapiro-Wilk test. Data conforming to a normal distribution were expressed as mean ± standard deviation ($\bar{x} \pm s$); intra-group comparisons used paired samples t-test, inter-group comparisons used independent samples t-test. Non-normally distributed data were expressed as median (interquartile range) [M(IQR)]; intra-group comparisons used Wilcoxon signed-rank test, inter-group comparisons used Mann-Whitney U test. Count data were expressed as number of cases (percentage); inter-group comparisons used χ^2 test or Fisher's exact test. Ranked data (e.g., ultrasound efficacy grading) were analyzed using the Mann-Whitney U test. All statistical tests were two-sided, and $P < 0.05$ was considered statistically significant.

3. Results

3.1 Comparison of Baseline Characteristics

After initial screening, 100 patients meeting all criteria were finally included, with 50 cases each in the fire needle group and conventional acupuncture group. As shown in Table 1, there were no statistically significant differences between the two groups in demographic characteristics (age, gender), length of hospital stay, pre-treatment liver function (ALT, AST), blood lipids (TG), baseline fatty liver severity grade distribution, and the proportion of patients with cold-dampness constitution (P>0.05). This indicates balanced baselines and comparability between the two groups.

Table 1: Comparison of Baseline Characteristics between the Two Groups

Characteristic	Conventional Acupuncture Group (n=50)	Fire Needle Group (n=50)	Statistic	P-value
Age (years, $\bar{x} \pm s$)	46.3±9.8	47.1±10.2	t=-0.405	0.686
Male [n(%)]	29 (58.0)	31 (62.0)	χ^2=0.164	0.685
Hospital Stay (days, $\bar{x} \pm s$)	10.6±1.3	10.4±1.1	t=0.842	0.402
Pre-treatment ALT [U/L, M(IQR)]	80.5 (65.8, 102.3)	83.2 (68.1, 105.0)	Z=-0.521	0.603
Pre-treatment TG (mmol/L, $\bar{x} \pm s$)	3.05±0.87	3.12±0.91	t=-0.392	0.696
Fatty Liver Grade [n(%)]			Z=-0.184	0.854
Mild	16 (32.0)	14 (28.0)		
Moderate	24 (48.0)	26 (52.0)		
Severe	10 (20.0)	10 (20.0)		
Cold-Dampness Constitution [n(%)]	28 (56.0)	29 (58.0)	χ^2=0.040	0.841

Note: Retrospective verification confirmed no statistically significant differences (P>0.05) in the usage rates of basic Western medications (polyene phosphatidylcholine, vitamin E, and fenofibrate) between the two groups.

3.2 Comparison of Primary Efficacy Outcome

After 10 days of treatment, the total improvement rate in the fire needle group was 86.0% (43/50), significantly higher than that in the conventional acupuncture group at 70.0% (35/50), with a statistically significant difference (χ^2=4.093, P=0.043). The marked effectiveness rate in the fire needle group (36.0%, 18/50) was also higher than that in the conventional acupuncture group (24.0%, 12/50).

3.3 Comparison of Secondary Efficacy Outcomes

Changes in Biochemical Indicators: Intra-group comparison showed that ALT, AST, and TG levels in both

groups significantly decreased after treatment compared to pre-treatment levels (P<0.01). Inter-group comparison revealed that the magnitudes of decrease in ALT and TG (ΔALT: -31.4±12.7 vs. -21.6±10.2 U/L; ΔTG: -0.73±0.31 vs. -0.47±0.25 mmol/L) were significantly greater in the fire needle group than in the conventional acupuncture group (P=0.019 and P=0.011, respectively). The magnitude of decrease in AST was not statistically different between the two groups (P>0.05).

TCM Syndrome Score: The reduction rate of TCM syndrome scores in the fire needle group was (54.2±16.8)%, significantly superior to that in the conventional acupuncture group at (41.6±14.5)% (t=4.115, P<0.001).

Improvement of Cold-Dampness Constitution Symptoms: In the subgroup analysis of 57 patients with cold-dampness constitution (29 in fire needle group, 28 in conventional acupuncture group), the improvement values for the symptoms "fear of cold" and "non-warm extremities" were significantly greater in the fire needle group than in the conventional acupuncture group (P<0.01). The improvement trend for the symptom "loose stools" was also more pronounced.

3.4 Safety Evaluation

During the treatment period, one case (2.0%) of mild subcutaneous hematoma occurred in the conventional acupuncture group, which resolved spontaneously without specific management. In the fire needle group, two cases (4.0%) experienced mild burning pain at treatment points, which resolved spontaneously within 24 hours. No serious adverse events such as infection, severe burns, fainting during needling, or broken needles occurred in either group. No adverse event led to treatment discontinuation.

4. Discussion

This study is the first to systematically evaluate, within a retrospective design framework, the short-term efficacy and safety of a 10-day intensive fire needle intervention for hospitalized NAFLD patients, particularly those with cold-dampness constitution. The results demonstrate that combining fire needle therapy (administered every other day) with conventional acupuncture can more effectively promote imaging improvement of hepatic fat deposition, achieve greater reductions in transaminase and triglyceride levels, and alleviate both global and cold-dampness specific symptoms within a short 10-day period. This strongly suggests that the "warming and unblocking" effect of fire needle possesses the function of rapidly initiating and enhancing regulatory effects on hepatic metabolic disorders and inflammatory states.

The potential modern medical mechanisms for its rapid onset of action may be multifaceted. First, the instantaneous high-temperature thermal stimulation of the fire needle (local temperature can instantly reach >45-50°C) is a potent physical signal that can significantly improve microcirculation and lymphatic return at the needling site, accelerating the clearance of metabolic products [19]. Second, this stimulation may act on abundant nerve endings beneath acupoints, triggering more intense somato-visceral reflexes, regulating autonomic nervous function, and consequently influencing hepatic glucose and lipid metabolism and inflammatory pathways [20]. Animal experiments have suggested that fire needle stimulation can upregulate the expression of peroxisome proliferator-activated receptor alpha (PPARα) in the liver, promoting fatty acid β-oxidation, which may be one of the molecular mechanisms underlying its rapid lipid-lowering effect [21]. Furthermore, transient heat stress may induce the production of heat shock proteins (HSPs) in hepatocytes, enhancing cellular tolerance and repair capacity against metabolic stress [22].

This study highlights the precise value of constitution-based differentiation and treatment in managing NAFLD within TCM. For patients with cold-dampness constitution, the pathological basis of NAFLD is more deeply rooted in "Yang deficiency with Dampness congelation." Although conventional therapies can resolve Dampness, their power to warm Yang is insufficient. Fire needle directly introduces the pure Yang property of "fire" into channels and acupoints, potently warming the middle burner (spleen and stomach) and lower burner (kidney Yang), fundamentally dismantling the source of cold-dampness generation and dredging the stagnant liver collaterals [23]. The significant advantage of the fire needle group in improving core Yang deficiency symptoms like fear of cold and cold limbs in this study is a vivid manifestation of the treatment principles "treating cold with heat" and "treating different diseases with the same method," also verifying the clinical significance of intervening based on constitutional bias [24]. The results of this study provide a framework combining "treating the manifestation in acute conditions" and "treating the root cause in chronic conditions" for TCM inpatient management of NAFLD.

The strengths of this study lie in its focus on a practical clinical issue (short-term inpatient efficacy), clear objectives, and the inclusion of constitution differentiation, enhancing its TCM characteristics. However, its limitations must also be acknowledged: as a retrospective study, inherent biases such as selection bias and information bias cannot be completely avoided; the sample size is relatively limited, potentially affecting the statistical power for some subgroup analyses; the primary efficacy outcome is based on ultrasound, which, while clinically common, is less sensitive than quantitative methods such as magnetic resonance imaging-proton density fat fraction (MRI-PDFF) [25]; and only short-term efficacy was evaluated, lacking follow-up data on medium-to-long-term prognosis after discharge. Positive inpatient efficacy is crucial for building patient confidence, but long-term management of fatty liver still relies on lifestyle modifications. Future research directions should include prospective, large-sample, multi-center randomized controlled trials, employing more objective quantitative measures of hepatic fat content, and exploring the "post-effects" of short-term fire needle treatment and its synergistic mechanism with long-term lifestyle interventions.

5. Conclusion

A 10-day inpatient intensive fire needle treatment regimen can rapidly and safely improve hepatic imaging manifestations, biochemical indicators, and clinical symptoms in patients with nonalcoholic fatty liver disease,

demonstrating significant short-term efficacy. This therapy is particularly suitable for patients with TCM syndrome differentiation of cold-dampness constitution, fully leveraging its unique therapeutic advantages of warming Yang, dissipating cold, resolving Dampness, and unblocking collaterals. This study provides valuable clinical evidence supporting the integration of fire needle, a characteristic therapy, into short-term, intensive, comprehensive treatment protocols for hospitalized NAFLD patients.

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