ARTICLE

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The efficacy of Jiawei Lizhong Tang combined with back Yu acupoint

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Author contributions

Dong–qi Sun was responsible for writing the article, designing the experiment and analysing the data; Xiao–ling Zhou supervised the experimental design and article revision; Teng Wu, Yue–ming Wang, Yi–ling Mill, Lin Liu, Su–hong Sun, Ze–peng Li, Bo–wen Ruan, and Jing–fang Yu participated in the data collection of the patients.

Competing interests

The authors declare no conflicts of interest.

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Abbreviations

NASH, non-alcoholic steatohepatitis; ALT, alanine aminotransferase; AST, aspartate aminotransferase; FINS, fasting insulin; LSM, liver stiffness measurement; CAP, controlled attenuation parameter.

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Abstract

Objective: To observe the clinical efficacy of Jiawei Lizhong Tang combined with dorsal Yu acupoint embedding in patients with non-alcoholic steatohepatitis (NASH). **Methods**: A total of 118 patients with NASH who attended the Department of Gastroenterology at Liuzhou Hospital of Traditional Chinese Medicine from January 2020 to December 2022 were selected as study subjects. The participants were randomly assigned to either the control group or the observation group using a random number table, with 59 cases in each group. The control group received treatment with Western medicine (compound glycyrrhizin capsule), whereas the observation group received treatment with traditional Chinese medicine combined with thread embedding (Jiawei Lizhong Tang combined with dorsal Yu acupoints embedding). Both groups received a treatment course of 12 weeks. The following anthropometric indicators were measured: weight, waist circumference, and body mass index. Liver function was assessed by measuring alanine aminotransferase (ALT), aspartate aminotransferase (AST), gamma-glutamyltransferase (GGT), and total bilirubin (TBIL). Lipid profile indicators included triglycerides (TG), total cholesterol (TC), low-density lipoprotein cholesterol (LDL-C), and high-density lipoprotein cholesterol (HDL-C). Blood glucose indicators included fasting blood glucose, fasting insulin (FINS), and insulin resistance index (HOMA-IR). Additionally, liver stiffness measurement (LSM), controlled attenuation parameter (CAP), and liver/spleen CT ratio were assessed. Clinical efficacy was evaluated at the end of the treatment period. RESULTS: After 12 weeks of treatment, significant improvements were observed in weight, waist circumference, BMI, serum ALT, AST, GGT, TBil, TG, TC, LDL-C, HDL-C, fasting glucose, FINS, HOMA-IR, LSM, CAP, and liver/spleen CT ratio in both groups compared to baseline ($P < 0.05$). The improvements in these indicators were significantly better in the observation group than in the control group after treatment ($P < 0.05$). **Conclusion**: The treatment of NASH with Jiawei Lizhong Tang combined with dorsal Yu acupoint embedding effectively improves patient condition, reduces liver function damage, regulates blood lipids, insulin resistance, and hepatic steatosis. The therapeutic effect is superior to that of Western medicine therapy.

Keywords: modified Lizhong decoction; acupoint catgut embedding; non-alcoholic steatohepatitis; clinical efficacy

Introduction

Non-alcoholic fatty liver disease (NAFLD) is a metabolic liver injury disease closely associated with insulin resistance (IR) and genetic susceptibility [1–2]. The spectrum of the disease includes non-alcoholic steatohepatitis (NASH), cirrhosis, and hepatocellular carcinoma. The incidence of NAFLD has been increasing annually, and it has become the leading chronic liver disease and the primary cause of liver enzyme abnormalities in China [3]. NASH is a critical stage in the progression of NAFLD, with approximately 10–20% of patients with NAFLD progressing to NASH. NASH is characterized by fat deposition in the liver, causing inflammation and cellular damage, which may lead to hepatocellular necrosis, hepatic fibrosis, and eventually cirrhosis. As such, NASH has gained significant attention as a key target for interventions in the progression of NAFLD [4].

Currently, Western medicine primarily improves NASH by using hepatoprotective drugs. However, the effectiveness of these treatments in repairing liver function damage and ensuring long-term stabilization in patients with NASH is limited [5]. Traditional Chinese medicine offers a multi-targeted and multi-dimensional approach to treating NASH. Traditional Chinese medicine posits that the development of NASH is related to the abnormal function of the spleen and stomach, leading to impaired transportation and transformation of nutrients. This dysfunction ultimately results in the accumulation of phlegm-dampness, turbid qi, blood stasis, and heat in the liver, thereby contributing to the onset of NASH [6]. In our previous basic research [7], we found that Jiawei Lizhong Tang combined with dorsal Yu acupoint embedding effectively improved biochemical indices, hepatic steatosis, and hepatic fibrosis in rats with NASH. In this study, we aim to verify whether Jiawei Zhong Tang combined with dorsal acupoint embedding is effective in the clinical treatment of NASH, with the goal of exploring additional therapeutic methods for managing this disease.

Information and Methods

Clinical data

A total of 118 patients with NASH who attended Liuzhou Hospital of Traditional Chinese Medicine from January 2020 to December 2022 were selected as study subjects. All patients were definitively diagnosed with NASH before inclusion in the study. Using the random number table method, 236 subjects who met the criteria for NASH were randomly assigned to the observation group and control group in a 1:1 ratio, with 59 cases in each group. In the observation group, there were 30 males and 29 females, aged 28–60 years (44.9 ± 10.38 years), with 5 cases of hypertension and 10 cases of diabetes mellitus. In the control group, there were 28 males and 31 females, aged 20-65 years (38.37 ± 11.84 years), with 8 cases of hypertension and 5 cases of diabetes mellitus. Comparison of general information such as gender, age, duration of disease, and condition of the two groups showed no statistically significant differences ($P>0.05$), indicating comparability between the groups. The compliance of patients in both groups was good, with no loss to follow-up or case shedding. This study was approved by the Ethics Committee of Liuzhou Hospital of Traditional Chinese Medicine, and all patients and their families provided informed consent. The ethical approval number is 2020JAN - KY - YN - 004 - 01.

Diagnostic criteria

The diagnostic criteria for NASH refer to the Guidelines for the Prevention and Control of Non-alcoholic Fatty Liver Disease (2018 updated version) [8]: ① No history of alcohol consumption, or consumption of <140 g/week of equivalent ethanol (<70 g/week for women). ②Exclusion of other specific causes of fatty liver, including autoimmune liver disease, total gastrointestinal extracellular nutrition, hepatomegaly, viral hepatitis, pharmacological hepatopathies, and other related diseases. ③Ultrasound or CT examination that meets the diagnostic criteria for diffuse fatty liver, with no other explanations for the condition. ④ Patients with metabolic syndrome-related components who exhibit an unexplained, persistent increase in serum gamma-glutamyltransferase (GGT), alanine aminotransferase (ALT), and/or aspartate aminotransferase (AST) (>1.5×ULN) for more than 6 months. For the traditional Chinese medicine diagnosis [9], the following symptoms are indicative of spleen yang deficiency: primary symptoms include obesity, vague pain under the right hypochondrium, and circumferential drowsiness; secondary symptoms include fatigue, epigastric fullness, scanty appetite, fear of cold, cold limbs, bland mouth with no thirst, and loose stools. Tongue and pulse symptoms include a pale tongue with white, moist coating and a thin, weak pulse. All primary and secondary symptoms, combined with the described tongue and pulse signs, are indicative of this syndrome.

Inclusion criteria

①Meets the diagnostic criteria for NASH; ②Aged between 18 and 65 years, with no restriction on gender; ③ Voluntarily agrees to participate in the clinical treatment study; ④Has not received any NASH–related treatment within 2 weeks prior to the trial and agrees not to receive any other NASH–related treatment during the study period.

Exclusion criteria

①Severe liver function injury (transaminase ⩾10 times the normal value, or bilirubin ⩾2 times the normal value); ②Serious heart, lung, brain, kidney, or other systemic diseases; ③ History of allergy to traditional Chinese medicines; ④ Inability to receive acupoint burrowing treatment due to poor coagulation or other contraindications.

Treatment methods

All subjects were instructed and trained on a healthy diet and reasonable exercise before treatment. The subgroup intervention program was as follows: ① Control Group: Patients in the control group received Compound Glycyrrhizin Capsules (trade name: Kain Ganle, produced by Beijing Kain Science and Technology Co., Ltd., State Pharmaceutical License H20080006, specification: 25 mg/capsule) orally, 3 capsules per dose, 3 times daily, for a course of 12 weeks. ② Observation Group: Patients in the observation group received traditional Chinese medicine (Jiawei Lizhong Tang) orally combined with dorsal Yu acupoint embedding. The traditional Chinese medicine was administered 1 dose per day, divided into two doses (morning and evening), and taken warm. Dorsal Yu acupoint embedding was performed once a week for 12 weeks.

Drug composition: Codonopsis pilosulae, dry ginger, Atractylodes macrocephala, roasted licorice, Cangzhu, Poria, Zedoza (15 g each), Chenpi, thick Park (10 g each), Chinese yam, red peony, Salvia miltiorrhiza, hawthorn, Shouwu, Puyi Ren, white peony (20 g each). The herbs were decocted in water using conventional water decoction methods. Dorsal Yu acupoint embedding treatment: The procedure involved identifying the liver Yu, spleen Yu, stomach Yu, and kidney Yu acupoints on the back. After skin disinfection, a 0.5 cm length of 0-size sheep intestine thread was embedded into each acupoint using an embedding needle. The initial acupoint embedding time was recorded, and subsequent treatments were performed every 7 days.

Observation indicators

Anthropological indicators Weight and waist circumference measurements were taken before and after the intervention. Body mass index (BMI) was also calculated.

Serum biochemical indices Fasting blood was drawn before and after the intervention to test liver function (including ALT, AST, GGT, total Bilirubin [TBil]), fasting blood glucose (FBG), fasting insulin (FINS), and blood lipid levels (including cholesterol, triglyceride, low-density lipoprotein [LDL], and high-density lipoprotein [HDL]). The insulin resistance index (HOMA-IR) was calculated using the formula: HOMA-IR = FBG (mmol/L) × FINS (mIU/L)/22.5

Liver/Spleen CT ratio Fasting CT scans were performed on both groups before and after the intervention, and liver/spleen ratios were calculated using computer software. According to the criteria set by

the Chinese Medical Association Hepatology Branch, a liver/spleen CT ratio of 1.0 - 0.7 was considered mild fatty liver, 0.7 - 0.5 moderate fatty liver, and <0.5 severe fatty liver. An improvement of ⩾1 grade in liver/spleen CT ratio was defined as effective. Additionally, a Fibrotouch test was performed to measure liver stiffness (LSM) and controlled attenuation parameter (CAP) values, which were used to assess hepatic steatosis and hepatic fibrosis.

Therapeutic efficacy criteria Therapeutic efficacy was determined according to the Guidelines for Clinical Research of New Chinese Medicines [9]: (1) Significant improvement: Traditional Chinese medicine evidence score reduction of more than 70%, aminotransferase normalization, more than 30% decrease in blood lipids, blood glucose, and HOMA-IR, and significant improvement in liver transient elastography. (2) Effective: Traditional Chinese medicine evidence score reduction of 40-70%, aminotransferase reduction, more than 20% decrease in blood lipids, blood glucose, and HOMA-IR, and moderate improvement in liver transient elastography. (3) Ineffective: Traditional Chinese medicine evidence score reduction of less than 40%, with no significant improvement in various tests and examinations. The total effective rate was calculated as: Total effective rate = (number of significant cases + number of effective cases)/total number of cases) × 100%

Adverse events The occurrence of adverse events in both groups was recorded during follow-up visits throughout the course of drug administration.

Statistical methods Data analysis was conducted using SPSS 22.0 software. Measurement data were expressed as mean ± standard deviation ($\bar{x} \pm s$). For normally distributed data, inter-group comparisons were performed using the independent samples t-test, and within-group comparisons were made using analysis of variance. The χ^2 test was used for categorical data. P – value <0.05 was considered statistically significant.

Results

Comparison of patients with NASH in the two groups before and after treatment Ergonomic indicators

There was no significant difference in weight, waist circumference, and BMI between the two groups of patients before treatment ($P>0.05$), indicating comparability. After treatment, weight, waist circumference, and BMI decreased in both groups compared to pre – treatment values, with statistically significant differences ($P<0.05$). Between-group analysis showed that after treatment, the anthropological indicators (weight, waist circumference, BMI) in the observation group improved significantly compared to the control group, with statistically significant differences ($P<0.05$), as shown in Table 1

Comparison of liver function in patients with NASH in the two groups before and after treatment

There was no significant difference in ALT, AST, GGT, and TBil between the two groups before treatment ($P>0.05$), indicating comparability. After treatment, ALT, AST, GGT, and TBil levels decreased significantly in both groups compared to pre-treatment values, with statistically significant differences ($P<0.05$). Between-group analysis showed that after treatment, the liver function indicators (ALT, AST, GGT, TBil) in the observation group improved significantly compared to the control group, with statistically significant differences ($P<0.05$). The comparison of liver function indicators in the two groups before and after treatment is shown in Table 2.

Comparison of lipid levels between the two groups of patients There was no significant difference in the blood lipid levels (total cholesterol [TC], triglycerides [TG], LDL-C, HDL-C) between the two groups before treatment ($P>0.05$), indicating comparability. After treatment, blood lipids in the observation group decreased significantly compared to pre-treatment levels, with statistically significant differences ($P<0.05$). In the control group, except for HDL-C, blood lipid levels decreased significantly after treatment compared to pre-treatment levels, with statistically significant differences ($P<0.05$). After 12 weeks of treatment, the blood lipid levels in the observation group decreased significantly compared to the control group, with statistically significant differences ($P<0.05$). A comparison of blood lipid levels between the two groups of patients before and after treatment is shown in Table 3.

Comparison of FBG, FINS, and HOMA-IR before and after treatment in both groups

There was no significant difference in FBG, FINS, and HOMA-IR between the two groups before treatment ($P>0.05$), indicating comparability. After treatment, except for FBG, FINS and HOMA-IR decreased significantly in the observation group compared to pre-treatment values, with statistically significant differences ($P<0.05$). In the control group, there was no significant decrease in FBG, FINS, or HOMA-IR compared to pre-treatment values, and the differences were not statistically significant ($P>0.05$). After 12 weeks of treatment, except for FBG, FINS and HOMA-IR levels in the observation group decreased significantly compared to those in the control group, with statistically significant differences ($P<0.05$). The comparison of FBG, FINS, and HOMA-IR between the two groups before and after treatment is shown in Table 4.

Comparison of LSM, CAP, and liver/spleen CT ratios between the two groups of patients before and after treatment

There was no significant difference in the LSM, CAP, and liver/spleen CT ratio values between the two groups before treatment ($P>0.05$), indicating comparability. After treatment, LSM, CAP, and liver/spleen CT ratios decreased in both groups compared to pre-treatment values, with statistically significant differences ($P<0.05$). After treatment, the observation group showed significant improvements in LSM, CAP, and liver/spleen CT ratio compared to the control group, with statistically significant differences ($P<0.05$). There was no significant difference in LSM between the observation and control groups ($P>0.05$). A comparison of LSM, CAP, and liver/spleen CT ratios between the two groups before and after treatment is shown in Table 5.

Comparison of clinical outcomes between the two groups of patients Comparison of clinical outcomes between the two groups is shown in Table 6

Table 1 Comparison of anthropological indicators before and after treatment ($\bar{x} \pm s$)

Group	Timing	Weight (kg)	Waist circumference (cm)	BMI
Observation group	Pre-treatment	68.74±6.81	81.92±4.17	25.56±0.41
	Post-treatment	63.17±6.33 *▲	74.99±4.22 *▲	23.49±0.52*▲
Control group	Pre-treatment	67.93±6.03	81.65±4.44	25.50±0.38
	Post-treatment	66.15±5.83*	80.66±4.46*	24.84±0.41*

*$P<0.05$ compared with the same group before treatment; ▲$P<0.05$ compared with the control group after treatment.

Table 2 Comparison of liver function indicators before and after treatment ($\bar{x} \pm s$)

Group	Timing	ALT (U/L)	AST (U/L)	GGT (U/L)	TBIL (μmol/L)
Observation group	Pre-treatment	98.27± 12.01	63.47± 10.43	66.82±12.52	32.20±9.70
	Post-treatment	51.29±8.79*#	38.73± 4.23*#	41.73±5.23*#	20.89±5.05*#
Control group	Pre-treatment	97.02±13.43	62.71±11.13	66.29±9.24	32.04±7.70
	Post-treatment	56.91±13.30*	46.15±8.70*	48.29± 7.52*	24.63± 5.98*

*$P<0.05$ compared with the same group before treatment; #$P<0.05$ compared with the control group after treatment.

Table 3 Comparison of lipid indices before and after treatment ($\bar{x} \pm s$)

Group	Timing (U/L)	TC (U/L)	TG (U/L)	LDL–C (U/L)	HDL–C (U/L)
Observation group	Pre-treatment	7.46±0.80	2.87±0.54	4.49±0.53	0.99± 0.17
	Post-treatment	6.10±1.40*#	2.39±0.71*#	3.76±1.17*#	1.12± .05*#
Control group	Pre-treatment	7.63±0.77	2.81±0.50	4.37±0.55	1.06±0.19
	Post-treatment	7.45±0.86*	2.69±0.63*	4.23±0.74*	1.08±0.19*

*$P<0.05$ compared with the same group before treatment; #$P<$ 0.05 compared with the control group after treatment.

Table 4 Comparison of FBG, FINS, and HOMA-IR before and after treatment ($\bar{x} \pm s$)

Group	Timing	FBG (mmol/L)	FINS (μU/L)	HOMA-IR
Observation group	Pre-treatment	5.15±0.71	11.95±2.62	2.73±0.69
	Post-treatment	5.07±0.70*#	10.40±2.28*#	2.34±0.64*#
Control group	Pre-treatment	5.12±0.77	11.69±2.33	2.68±0.75
	Post-treatment	5.06±0.75*	11.64±2.17*	2.64±0.72*

*$P<$ 0.05 compared with the same group before treatment; #$P<$ 0.05 compared with the control group after treatment.

Table 5 Comparison of LSM, CAP, and liver/spleen CT ratios between the two groups of patients before and after treatment

Group	Timing	LSM	CAP	Liver/Spleen CT Ratio
Observation group	Pre-treatment	9.39± 2.17	266.49±20.67	0.43±0.16
	Post-treatment	7.12± 1.96*#	232.07±22.88*#	0.91±0.26*#
Control group	Pre-treatment	9.22±2.18	265.79±20.64	0.46±0.17
	Post-treatment	8.08±2.03*	251.10±22.93*	0.80±0.22*

*$P<$ 0.05 compared with the same group before treatment; #P< 0.05 compared with the control group after treatment.

Table 6 Comparison of clinical outcomes between the two groups (cases, %)

Group	Number of cases	Statistically significant	Effective	Null	Overall effectiveness/(%)
Observation group	59	20 (33.89)	34 (57.62)	5 (8.47)	(91.52)△
Control group	59	12 (20.33)	22 (37.28)	25 (42.37)	(57.62)

Compared with the control group, △$P<0.05$

Conclusion

NASH is a further development of NAFLD, and the pathogenesis of NASH remains incompletely understood.Early pathological features of NASH include fat accumulation in the liver, minimal inflammation, and hepatocellular damage. The "Second Strike" is the classic pathway for NASH. The first strike is due to IR and lipid metabolism disorders caused by overeating and poor lifestyle habits, leading to liver fat deposition, metabolic syndrome, liver inflammation, and hepatocyte damage [10]. The second strike builds on the first, with liver inflammation and hepatocyte damage. The inflammation is reactivated by oxidative stress, which gradually progresses to bridging fibrosis or cirrhosis. Thus, it can be seen that NAFLD is a complex disease, and NASH, as the target stage for intervention in the treatment of NAFLD, makes the regulation of IR and lipid metabolism disorders an important factor in mitigating the development of the disease in early NASH [11, 12].

Fatty liver is the term used in Western medicine, whereas in Chinese medicine, it is more commonly known as "accumulation disease." The Neijing states, "Accumulation of the liver refers to fat gas." The Difficult Classics (Fifty – six Difficults) states: "The liver accumulation is called fat gas, which causes coercion, like a cup or a head, and does not heal over time. It causes hair loss, coughing, rashes, and even malaria, persisting for years." The Pulse Classics [13] further states: "Diagnosis of liver accumulation is indicated by a string and fine pulse, two coils of pain, with the evil force going to the heart. It leads to cold feet and shins, coercive pain in the abdomen, a body without cream, like turning tendons, claws, and nails withered and black, and a greenish color in spring or autumn." It can be seen that fatty liver can be categorized as a type of "accumulation disease," manifested in the liver's inability to properly process fat, leading to its accumulation in the spleen and liver. This accumulation forms lumps in the absence of healthy transportation. Chinese medicine believes that fat comes from the essence of water and grains, which are necessary for the human body. However, too much fat, due to an unhealthy spleen, leads to improper transportation, which causes the accumulation of phlegm, dampness, and turbid qi, contributing to blood stasis. As mentioned in the "Clinical Guide to Medicine – Spleen and Stomach" [14], the spleen and stomach are important organs for digesting and absorbing the essence of water and grains. The ascending and descending movement of the spleen and stomach is key to the smooth operation of the human body's qi. When the spleen is not healthy, the essence from

water and grains cannot be properly transformed, leading to the injection of phlegm, dampness, and lipids into the bloodstream, which in turn elevates blood lipids. Therefore, Chinese medicine believes that the key to treating fatty liver is to regulate the function of the spleen. As stated in Su Wen – Jing Mai Bie Lun [15], the spleen has an important function in transporting and transforming water and grain essence. Normal transportation by the spleen ensures the generation of qi, blood, and essence in the human body and produces normal fat. However, when the spleen loses its health and transportation, the transmission and transformation are disrupted, and phlegm-dampness and lipid turbidity will form and be injected into the blood vessels, leading to pathologically elevated blood lipids. Therefore, the treatment of fatty liver should focus on treating the spleen.

Through reading and organizing the literature, we found that in the treatment of NASH, spleen-yang deficiency and cold were the primary symptoms, and warming and strengthening the spleen was the most important treatment method [16, 17]. Li-Zhong Tang, originating from the "Treatise on Typhoid Fever," is a classic formula for treating spleen and stomach dysfunction, and warming and strengthening the spleen. [18]. The key to the onset of NASH lies in the failure of spleen and stomach transportation, which leads to the accumulation of pathological factors, including phlegm, dampness, turbidity, stasis, and heat in the liver [18]. The pathogenesis of NASH is fundamentally rooted in the dysfunction of the spleen and stomach in transportation and transformation, which subsequently leads to the accumulation of pathological factors such as phlegm, dampness, turbidity, stasis, and heat in the liver. Therefore, based on the warming and fortifying effects of Li – Zhong Tang on the spleen, we incorporated additional herbs to enhance its efficacy: Poria and Dioscorea to tonify qi and strengthen the spleen; Atractylodes, Citrus peel, and Magnolia bark to eliminate dampness, resolve phlegm, and regulate qi to harmonize the stomach; Red peony root, Salvia miltiorrhiza, and Hawthorn to clear heat, cool the blood, and dissipate stasis; Alpinia oxyphylla and Alisma to warm the kidneys and reduce turbidity; and Polygonum multiflorum and White peony root to nourish the blood and soften the liver. The combination of these herbs aims to provide symptomatic relief for the liver while addressing both the symptoms and the root cause. All medicines are used together to treat both the symptoms and the root cause. Meridian theory is a key concept in Chinese medicine that describes the internal channel system of the human body, responsible for transporting qi and blood, connecting internal organs and limbs, and coordinating the upper and lower parts of the body. According to meridian theory, the Foot Yangming Stomach Meridian runs from the head to the feet, with the flow of qi and blood in the stomach meridian moving top – down. In contrast, the Foot Taiyin Spleen Meridian starts at the foot and passes through the chest and abdomen, with the flow of qi and blood in the spleen meridian moving bottom – up. These two meridians are interconnected through the network of meridians, allowing the flow of qi and blood to realize changes in elevation and supporting the normal operation of the central qi [19]. The Solar Bladder Meridian qi is connected to the Yangming Stomach Meridian qi. As described in Ling Shu – Jing Wei (The Spiritual Pivot – Meridians and Vessels): "The Bladder Meridian of the Foot Taiyang starts from the inner canthus of the eye, ascends to the forehead, and intersects at the top of the head; its branch travels from the top of the eye to the upper corner of the ear; its direct path enters the brain and exits at the lower part of the neck, traveling along the shoulder and spine to the middle of the waist. It then enters the brawn, proceeding into the kidneys, which are part of the bladder." The bladder meridian qi can pass through the Yang meeting points, stimulating the back Yu points to invigorate Yang qi. This meridian flow can enhance the Yang of the stomach, supporting the Yang of the spleen and improving its function. The team proposed the "Yu adjusting the pivot" [20] theoretical point of view, which can directly adjust the function of the internal organs' bowels. Using the goat's intestine to select the back solar bladder meridian points – Liver Yu, Spleen Yu, Stomach Yu, and Kidney Yu – for treatment, and continuously stimulating the dorsal Yu points, helps regulate the elevation and intersection of the meridian qi of the Ren and Du channels. This treatment ultimately achieves the regulation of the spleen and stomach's elevation.

The results of this study show that, compared to pre-treatment, the weight, waist circumference, and BMI of patients in the observation group decreased significantly and were lower than those in the control group during the same period ($P<0.05$). This suggests that the patients experienced a reduction in systemic and abdominal fat accumulation, including liver fat accumulation. Additionally, compared to pre – treatment, serum ALT, AST, GGT, and TBIL levels in the observation group decreased significantly and were lower than those in the control group during the same period ($P<0.05$), indicating a reduction in hepatocyte damage. Furthermore, compared to pre-treatment, blood lipid levels (TC, TG, LDL – C, HDL – C) and IR significantly decreased in the observation group, with levels lower than those in the control group during the same period ($P<0.05$). This suggests that Jiawei Lizhong Tang combined with dorsal Yu acupoint embedding may improve IR, enhance liver cell fat uptake and transport, and reduce fat accumulation and hepatocyte damage, thereby promoting lipid metabolism. Compared to pre – treatment, instantaneous elastography, LSM, CAP values, and liver/spleen CT ratios in the observation group decreased significantly and were lower than those in the control group ($P<0.05$). This suggests that the combination of Jiawei Lizhong Tang and dorsal Yu acupoint embedding can directly treat fatty liver and prevent the progression to fibrosis. In summary, the overall efficacy rate in the observation group was higher than that in the control group, and the symptom score was significantly lower in the observation group. This indicates that Jiawei Lizhong Tang combined with dorsal Yu acupoint embedding is highly effective in treating NASH in patients with spleen – yang insufficiency, alleviating clinical symptoms, and addressing fatty liver. We conclude that this treatment approach aligns with traditional Chinese medicine principles of "internal regulation of internal organs" and the "external regulation of meridians and collaterals" through acupoint embedding. Therefore, we believe that the synergistic mechanism of "internal regulation of internal organs" with traditional Chinese medicine and "external regulation of meridians" through acupoint thread embedding is an effective method for treating NASH.

References

1. Tmazilescu L I, Selzner M, Selzner N. Defatting strategies in the current era of liver steatosis. *JHEP Rep.* 2021, 3(3): 100265. Available at: https://doi.org/10.1016/j.jhepr.2021.100265
2. Liguori A, Ainora ME, Riccardi L , et al. The role of elastography in non-alcoholic fatty liver disease. *Minerva Gastroenterol (Torino).* 2021, 67(2): 164-170. Available at: https://doi.org/10.23736/S2724-5985.21.02801-4
3. Le M H, Yeo Y H, Li X, et al. 2019 Global NAFLD Prevalence: a Systematic Review and Meta-analysis. *Clin Gastroenterol Hepatol.* 2022, 20(12): 2809-2817. Available at: 10.1016/j.cgh.2021.12.002
4. Kumar R, Priyadarshi R N, Anand U. Non-alcoholic fatty liver disease: growing burden, adverse outcomes and associations. *J Clin Transl Hepatol.* 2020, 8(1): 76-86. Available at: 10.14218/JCTH.2019.00051
5. National Workshop on Fatty Liver and Alcoholic Liver Disease,Chinese Society of Hepatology,Chinese Medical AssociationFatty Liver Expert Committee,Chinese Medical Doctor Association. Guidelines for prevention and treatment of nonalcoholic fatty liver disease (2018 updated version). *J Prac Hepatol.* 2018, 21(02): 177-186. （Chinese）Available at: 10.3969/j.issn.1672-5069.2018.02.007
6. Professional Committee of Digestive Diseases of the Chinese Society of Integrative MedicineMedicine,Professional Committee of Digestive Diseases of the Chinese Society Integrative of Chinese Society of Traditional Chinese Medicine Spleen and Stomach Diseas. Consensus opinion on combined Chinese and Western medicine diagnosis and treatment of

nonalcoholic fatty liver disease (2017). *Chin J Integr Trad West Med Dig.* 2017,25(11):805-811. (Chinese) Available at: 10. 3969/j.issn.1671-038X2017.11.02

7. PAN Yiqiao, ZHOU Xiaoling, LI Zepeng, et al. Mechanism of non-alcoholic steatohepatitis in rats with non-alcoholic steatohepatitis by IKK/IKB/NF-κB signaling pathway in combination with Li-Zhong Tang. *J Integra Chinese and Western Medicine and Liver Disease.* 2022, 32(01): 49-52. （Chinese） Available at: 10.3969/i.issn.1005-0264.2022.01.013
8. Steatohepatitis and Alcoholic Liver Disease Group of the Chinese Medical Association Hepatology Branch, Steatohepatitic Liver Disease Expert Committee of the Chinese Medical Association. Guidelines for prevention and treatment of nonalcoholic fatty liver disease (2018 updated version). *Infectious Disease Information.* 2018, 31(05): 393-402＋20. (Chinese) Available at: 10.1111/1751-2980.12685
9. Zheng Xiaoyu. Guidelines for clinical studies of new Chinese medicines: a trial. China Pharmaceutical Science and Technology Press. 9787506725866
10. Zeng F, Zhang Y, Han X, et al. Predicting Non-Alcoholic Fatty Liver Disease Progression and Immune Deregulations by Specific Gene Expression Patterns. *Front Immunol.* 2020, 11: 609900. Available at: 10.3389/fimmu.2020.609900
11. Engin A. Non-Alcoholic Fatty Liver Disease. *Adv Exp Med Biol.* 2017:443–67. Available at: http://doi.org/10.1007/978-3-319-48382-5_19
12. Tariq Z, Green C J, Hodson L. Are oxidative stress mechanisms the common denominator in the progression from hepatic steatosis towards non-alcoholic steatohepatitis (NASH)?. *Liver Int.* 2014, 34(7): e180-190.
13. Wang Shuhe. The Pulse Classic. Zhongban Group Digit Media Co., Ltd.. 978-7-89902-342-6
14. ZHAO Jiayou, SONG Chunsheng, ZHANG Ying. Analysis and Application of Discriminative Treatments in "Clinical Guidelines for Medical Cases-Spleen and Stomach". *China Journal of Basic Chinese Medicine.* 2016, 22(10): 2. (Chinese)
15. Zhang Dengben. Su wen. China Medical Science and Technology Press. 9787521446715
16. Li Zepeng, Ji Xiaoling, Zhou Xiaoling, et al. Exploration of the evidence and treatment of fatty liver prescriptions in ancient books of the Qing Dynasty. *Shizhen Guojian Guoyao.* 2019, 30(03): 731-732. (Chinese)
17. Li Zepeng, Ji Xiaoling, Zhou Xiaoling, et al. Analysis of the evidence and treatment of fatty liver through the ages based on ancient books. *Chinese Journal of Traditional Chinese Medicine.* 2016, 31(10): 4307-4308. (Chinese)
18. XU Yong, TAO Ying, GOU Xiaojun. Exploration of the etiology and pathogenesis of non-alcoholic fatty liver in Chinese medicine. *Chinese Journal of Traditional Chinese Medicine.* 2016, 34(11): 2586-2589. (Chinese)
19. ZHOU Xiaoling, WEI Wanhua. Research progress of acupuncture therapy for non-alcoholic fatty liver disease. *Liaoning Journal of Chinese Medicine.* 2018, 45(02): 426-429. (Chinese)
20. XIE Sheng, ZHANG Yue, ZHOU Xiaoling. Proposal and construction of the theory of "regulating the hub by means of Yu" to regulate the functions of the spleen and stomach. *Liaoning Journal of Chinese Medicine*. 2011, 38(09): 1876-1877. (Chinese)