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Original Article

Clinical study of Chinese medicine holographic scraping combined with hot ironing in improving early diabetic retinopathy

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Abstract: Objectives: To investigate the clinical effect of holographic scraping combined with Chinese medicine hot ironing on the improvement of early diabetic retinopathy (DR). Methods: The clinical data of 120 inpatients with diabetes mellitus were retrospectively analyzed. All patients had early retinopathy. According to different treatment methods, the patients were segmented into a scraping group (accepted holographic scrapping), an ironing group (accepted Chinese medicine hot ironing), and a combined treatment group (accepted holographic scraping combined with Chinese medicine hot ironing). The traditional Chinese medicine (TCM) symptom scores, efficacy in TCM symptom relief and fundus symptom relief, quality of life, blood glucose index level, and safety were compared among the three groups. Results: Compared with the scraping group and the ironing group, the TCM symptom scores of the combined treatment group on the 3rd day, 7th day, and 14th day of treatment were decreased; The total effective rates in TCM symptom relief and fundus symptom relief were increased; The scores of four dimensions in QoL of patients increased (all P<0.05); and Fasting blood glucose (FBG), 2 h postprandial blood glucose, and glycosylated hemoglobin were decreased (all *P*<0.05). There was no significant difference in the distribution of DR grade (I, II, and III) in the combined treatment group compared with the scraping group and ironing group (all *P*>0.05). The resistance index of the combined group after treatment was lower than that before treatment and lower than that of the hot ironing group and scraping group (all *P*<0.05). Conclusions: The application of holographic scraping combined with Chinese medicine hot ironing in the treatment of early DR could alleviate the symptoms of blurred vision and dry eyes. Early intervention for retinopathy with both methods can reduce the disability rate and improve the quality of life of patients, which has a better effect than simple therapy.

Keywords: Scraping, Chinese medicine, hot ironing, early, diabetic retinopathy

Introduction

As a common microvascular complication of diabetes, diabetic retinopathy (DR) is characterized by changes in retinal microvessels that can cause a fundus lesion with specific changes that are extremely destructive, it can lead to irreversible blindness in patients and is one of the main causes of blindness in China [1]. At the same time, it is in the category of "Shizhan Hunmiao" (which means that there is no abnormality in the external eye, but the vision is diminished, so that the vision is blurred) and "Bingblind" (refers to circumstances where the appearance of eyes is good, but the vision of one or both eyes suddenly and sharply decreased or results in blindness in severe eye disorders) in traditional Chinese medicine [2].

According to statistics, about a quarter of diabetic patients suffer from DR, and 7% of newly diagnosed type 2 diabetic patients already have DR [3]. With the development of China's economic level, the incidence of diabetes has increased, and the prevalence of DR has been increasing. The development of DR is a process of continuous retinal damage. Timely intervention in the early stage of DR, especially in stages I, II, and III, is the key to treatment. Timely intervention could delay or even prevent the progress of DR and thus avoid irreversible blindness [4]. Progressive DR will gradually affect

patients' visual acuity, and then reduce their quality of life. At present, there is still a lack of specific drugs in the clinical treatment of DR. Epalrestat, calcium besylate, and alprostadil are commonly used western drugs for the treatment of DR, but their effects are still not satisfactory. Finding a simple, safe, and effective nursing treatment method that can delay or prevent the progression of early DR is one of the hot spots in clinical research.

According to the theory of traditional Chinese medicine, the pathogeneses of DR involves desiccation, heat, and Yin deficiency, and the pathogenic factors include cold coagulation and blood stasis, eye and collateral block, and interlocking of phlegm and blood stasis [5]. Scraping the holographic point area of the patient's eye can directly stimulate the meridians and collaterals, so as to improve the excitability of sympathetic and parasympathetic nerves and achieve the purpose of relaxing and relieving eye fatigue and dredging the meridians of the eye. Traditional Chinese medicine hot ironing has the effect of clearing the liver and brightening the eyes. Through eye hot ironing, the synergistic effect of traditional Chinese medicine can be played to warm the meridians and collaterals and promote the qi and blood circulation. These two traditional Chinese medicine treatment methods can act on the eye meridians and relieve the symptoms of eye blood stasis and eye collateral block. Therefore, we believe the combination of holographic scraping and traditional Chinese medicine hot ironing may have a high therapeutic effect on DR. No relevant research reports have been found so far on this topic. Based on this, this study retrospectively analyzed the clinical data of early DR patients, aiming to observe the therapeutic effect of holographic scraping combined with traditional Chinese medicine hot ironing, to form a set of targeted and effective nursing treatment plans for such patients in the future clinical treatment of DR.

Materials and methods

Basic data

This study was approved by the Ethics Committee of Hangzhou Lin'an TCM Hospital. A retrospective analysis was performed to collect the clinical data of 120 inpatients with diabetes mellitus from May 2021 to May 2022.

Inclusion criteria: (1) Stage I-III simple type DR; (2) Monocular disease; (3) Clear consciousness with the ability to express self-feelings and cognition; (4) The systematic medication of the patients was the same and the insulin and hypoglycemic drugs were used in the treatment; (5) With an age ≥18; (6) Education level of junior middle school or above; (7) With complete clinical data.

Exclusion criteria: (1) Vitreous hemorrhage and unable to see the fundus; (2) Other eye diseases; (3) Women in pregnancy and lactation; (4) Mental or psychological disease.

A total of 120 patients were enrolled in the study. By different treatment methods, the patients were segmented into a scraping group (holographic scrapping), an ironing group (Chinese medicine hot ironing), and a combined treatment group (holographic scraping combined with Chinese medicine hot ironing). The basic data of the three groups were compared and the results showed no apparent differences, as shown in **Table 1**. The research procedure is shown in **Figure 1**.

Diagnostic criteria

Case diagnosis criteria: the standard diagnosis was made according to the Manual of Prevention and Treatment of Diabetes Mellitus and Its Complications [6]. Diagnostic criteria for early diabetic retinopathy: the currently used staging Criteria for Diabetic retinopathy were proposed by the first National Fundus Disease Academic Conference for trial implementation which was discussed, approved, and implemented by the third National Ophthalmology Academic Conference. The criteria are shown in **Table 2**. Stages I-III DR belong to simple retinopathy, also known as non-proliferative or early retinopathy, and stages IV-VI belong to proliferative retinopathy.

Therapeutic methods

Conventional treatment methods: (1) Patients were instructed to control blood glucose, blood lipids, and blood pressure strictly following the doctor's advice; (2) Conventional diabetes education, including diabetes knowledge education, blood glucose monitoring, diet therapy, exercise therapy, and drug therapy, were car-

Table 1. Basic data of patients [x ± s, n (%)]

Data	Scraping group (n=40)	Ironing group (n=40)	Combined treatment group (n=40)	$F/\chi^2/H$	*P*
Gender (male/female)	19/21	22/18	24/16	1.276	0.528
Age (years)	56.21±5.79	55.62±6.13	57.28±6.41	0.757	0.471
Sick eye (left/right)	25/15	23/17	27/13	0.853	0.653
Disease staging (stage I/stage II/stage III)	7/20/13	10/16/14	7/18/15	0.331	0.848
Duration of diabetes (years)	8.68±2.14	8.55±2.29	8.31±2.08	0.299	0.742
Education					
high school and above	28 (70.00)	26 (65.00)	23 (57.50)	1.377	0.502
technical secondary school and below	12 (30.00)	14 (35.00)	17 (42.50)		
SBP (mmHg)	135.53±15.22	134.67±15.57	136.05±14.48	0.085	0.918
DBP (mmHg)	76.64±12.25	78.36±9.55	77.64±10.16	0.260	0.772
FPG (mmol/L)	9.10±2.46	8.63±2.83	8.64±2.39	0.438	0.647
2 h postprandial blood glucose (mmol/L)	13.12±3.35	12.54±3.52	12.57±3.48	0.358	0.670
HbA1 (%)	7.83±2.29	7.92±2.25	8.16±2.08	0.239	0.788

Note: SBP stands for systolic blood pressure, DBP stands for diastolic blood pressure, and FBG stands for fasting blood glucose.

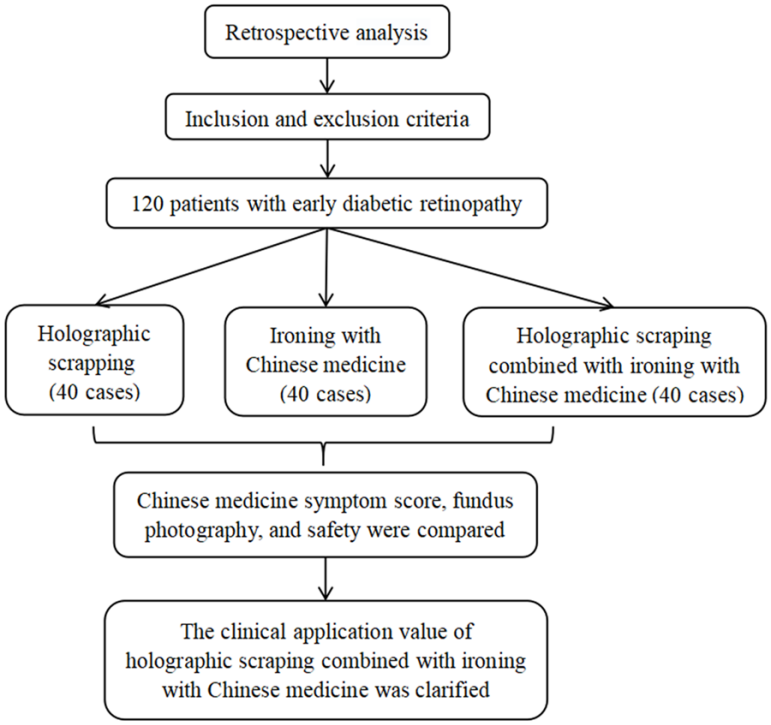

Figure 1. The research procedure.

ried out for patients; (3) Eye care: patients were taught about eye hygiene, to prevent infection, and avoid eye fatigue; (4) Psychological nursing: nursing staff comforted patients and answered patients' doubts to reduce their anxiety and depression.

Patients in the scraping group received eye holographic scraping treatment: (1) The patient was placed in a supine position with a head cushion to lift the head 15 degrees higher; (2) The operator disinfected their hands first. Cleansing, and applying oil to scrape the corresponding holographic area, first scraping the frontal 3 bands, the frontal band, and the rear head holographic area. (3) After applying special scraping oil around the eye, the operator gently and uniformly scraped along the direction of the orbicularis oculi muscle shape, from inside to outside, by keeping the angel of the scraping board to the skin less than 15 degrees, and the acupoint was vertically pressed; (4) The eyes were scraped using the flat surface of the plate along the upper orbital bone by Zanzhu, Yuyao, and Sizhukong to the temple, and then along the lower orbital bone by Chengqi, Sibai, and Sizhukong the outward arc scraping to Tong Zi Liao. The scraping adopted the method of flat reinforcing and reducing. The

Table 2. DR classification criteria

Classification	Stages	Retinopathy
Simple retinopathy	I	There were microaneurysms or small bleeding spots; (+) means less and easy to count; (++) means more and not easy to count.
	II	There was yellow and white "hard exudation" or combined with blood spots; (+) means less and easy to count; (++) means more and not easy to count.
	III	White "soft exudation" or combined with blood spots; (+) means less and easy to count; (++) means more and not easy to count.
Proliferative retinopathy	IV	Neovascularization in the fundus, or fundus with vitreous hemorrhage increment type.
	V	New blood vessels and fiber proliferation in the fundus.
	VI	Neovascularization and fiber proliferation in the fundus with retinal detachment.

Note: DR stands for diabetic retinopathy.

Table 3. TCM symptom score standard

Symptom	Score
Blurred vision	0 (normal): no symptoms.
	2 points (mild): there was a small black shadow in front of the eyes but ignore the blurred symptoms.
	4 points (moderate): multiple small black shadows in front of the eyes or slightly blurred vision.
	6 points (severe): there was a large black shadow in front of the eyes or serious attention to the blurred symptoms.
Dry eyes	0 (normal): no symptoms.
	2 points (mild): occasional dryness.
	4 points (moderate): often dry.
	6 (severe): unbearably dry.

Note: TCM stands for traditional Chinese medicine.

operator communicated with the patient during the scraping to make sure the patient could well tolerate the sensations and no red marks appeared. Each step was repeated 5 times, and the front end of the scraping board was moved along the scraping direction from light to heavy in a gradual way according to the above points. It was advisable to press each point for 5 s to make the patient feel acid, numbness, distension, and pain. If the skin was found to be dry during scraping, the scraping oil should be applied again. The eye scraping time was 20 min.

Patients in the ironing group were treated with Chinese medicine hot ironing. The prescription of traditional Chinese medicine included Radix Ophiopogonis 30 g, Chrysanthemum 20 g, Buddleja officinalis Maxim 30 g, Sticktight 20 g, Parched semen cassia 30 g, Glossy privet fruit 30 g, Schisandrae Chinensis 12 g, Forsythia seed 20 g, Pipewort 30 g, Betelnut piece 20 g, Salvia miltiorrhiza 20 g; Earthworm 20 g; Borneol 10 g (external application). A powder of the above herbs was put into a self-made cloth bag and heated to 40-42°C in an incubator, before being applied to the eye dressing (on acupoints of Sibai, Yintang, Zanzhu, Yuyao, and Sizhu, then covered with gauze). The ironing bag was placed below the eye for 4-5 minutes on the gauze with local ironing for 6-7 min, 3 times, for a total of 20 min of ironing.

Patients in the combined treatment group were treated with eye holographic scraping combined with Chinese medicine hot ironing. The operation process of eye holographic scraping and Chinese medicine hot ironing was the same as above. After the end of eye holographic scraping, Chinese medicine hot ironing was performed for a total of about 40 min.

The above three groups were treated for 7 days as a course of treatment with a total of 2 courses of continuous treatment. All of them were operated by senior nurses after unified training.

Observational indexes

Traditional Chinese medicine (TCM) symptom scores were evaluated according to the scoring standard shown in **Table 3**. The curative effect was evaluated according to the "Curative Effect Criteria of Traditional Chinese Medicine Symptoms" [7]. Recovery: blurred vision and dry eyes completely subsided, and the symptom score reduction rate was ≥95%. Obviously effective: blurred vision and dry eyes subsided obviously, and symptom score reduction rate was ≥70%. Effective: blurred vision and dry

Table 4. Fundus photography

Items	Expression
Number of microhemangiomas	(+++) – (++), (++) – (+), or (+) cause to disappear.
Amount of bleeding	(+++) – (+), or (++) cause to disappear.
Exudation	(+++) – (++), (++) – (+), or (+) cause to disappear.

Note. (+) refers to relatively easy to count; (++) refers to more, relatively difficult to count; (+++) refers to a lot of bleeding and exudation that not be counted or even fused into a piece.

eyes symptoms improved, and the symptom score reduction rate was ≥30%. Ineffective: there was no change or even aggravation after treatment, symptom score reduction rate was less than 30%. The TCM symptom scores were collected before treatment, on the 3rd day, 7th day, and 14th day of treatment, and the efficacy after treatment was evaluated according to the scores.

Fundus photography was used to observe retinal microangioma, bleeding, and exudation of the patients, as shown in **Table 4**. Significantly effective: more than 2 out of the 3 indicators were met; Effective: more than one indicator was met. Ineffective: none of the indicators was met; Deterioration: any of the 3 indicators deteriorated [8].

Treatment safety was evaluated. Grade I: Safe, without any adverse reactions; Grade II: relatively safe, and the adverse reactions subsided with no treatment required; Grade III: there were safety problems and moderate adverse reactions, and the therapy could only be continued after symptomatic treatment; Grade IV: discontinuation of the therapy due to adverse reactions (such patients were not included in this study) [9].

Quality of life: the Scale of Life Quality for Diseases with Visual Impairment (SQOL-DVI) was used to evaluate the quality of life [10]. The scale includes 4 dimensions (20 indicators) including symptoms and visual function, body functions, public activity, and psychological activities. A higher total score indicates a better quality of life.

Blood glucose indexes, including fasting blood glucose (FBG), 2 h postprandial blood glucose, and glycosylated hemoglobin were tested as well.

Central retinal artery flow, including peak systolic velocity, end-diastolic maximum blood flow velocity, and resistance was examined.

Statistical methods

SPSS 23.0 software was used for data analysis. Quantitative data were expressed as "$x \pm s$". LSD-t test was used for comparison between groups, and repeated measure ANOVA was used for comparison of data at multiple time points. Qualitative data were expressed as the number of cases or percentage, and the chi-square test or Kruskal-Wallis H (K) test was performed for the analysis. When $1 \leq$ theoretical frequency <5, the chi-square value needed to be corrected. The test level was $\alpha=0.05$.

Results

TCM symptom scores

The TCM symptom scores of the combined treatment group on the 3rd day, 7th day, and 14th day of treatment were lower than those of the scraping group and the ironing group (all $P<0.05$). The TCM symptom scores of the three groups all showed a decreasing trend as the therapies went on, and there was an interaction effect between the groups and time (intergroup effect: $F=82.080$, $P<0.001$; Time effect: $F=13.210$, $P<0.001$; Interaction effect: $F=2.423$, $P=0.026$). As shown in **Table 5**.

Efficacy in TCM symptom relief

Compared with the scraping group and the ironing group, the total effective rate in TCM symptom relief of the combined treatment group was higher ($P<0.05$), as shown in **Table 6**.

Efficacy in fundus symptom relief

Compared with the scraping group and the ironing group, the total effective rate in fundus symptom relief of the combined treatment group was higher ($P<0.05$), as shown in **Table 7**.

Quality of life

Before treatment, the scores of symptoms and visual function, body functions, public activity,

Table 5. TCM symptom score ($\bar{x} \pm s$, points)

Time	Scraping group (n=40)	Ironing group (n=40)	Combined treatment group (n=40)	F	*P*
Before treatment	12.62±3.32	12.64±3.25	12.54±3.31	0.010	0.990
On the 3rd day of treatment	10.32±3.09	10.28±3.11	9.05±3.02	3.525	0.033
On the 7th day of treatment	8.61±2.39	8.55±2.41	7.38±2.14	3.584	0.031
On the 14th day of treatment	8.66±2.25	8.31±2.34	5.58±1.64	25.800	<0.001

Note: TCM stands for traditional Chinese medicine.

Table 6. Effective rate in TCM symptom relief [n (%)]

Group	Ineffective	Effective	Obvious effect	Recovery	Total effective
Scraping group (n=40)	15 (37.50)	8 (20.00)	11 (27.50)	6 (15.00)	25 (62.50)
Ironing group (n=40)	13 (32.50)	9 (22.50)	10 (25.00)	8 (20.00)	27 (67.50)
Combined treatment group (n=40)	4 (10.00)	7 (17.50)	9 (22.50)	20 (50.00)	36 (90.00)
χ^2/H		15.167			9.801
P		0.001			0.007

Note: TCM stands for traditional Chinese medicine.

Table 7. Effective rate in fundus symptom relief [n (%)]

Group	Deterioration	Ineffective	Effective	Significant effect	Total effective
Scraping group (n=40)	2 (5.00)	9 (22.50)	22 (55.00)	7 (17.50)	29 (72.50)
Ironing group (n=40)	1 (2.50)	11 (27.50)	19 (47.50)	9 (22.50)	26 (65.00)
Combined treatment group (n=40)	0 (0.00)	4 (10.00)	14 (35.00)	22 (55.00)	36 (90.00)
χ^2/H		14.976			7.863
P		0.001			0.020

and psychological activity were compared among the three groups (*P*>0.05). Compared with the scraping group and the ironing group, the scores of the 4 dimensions in the combined treatment group were higher (*P*<0.05), as shown in **Figure 2**.

Blood glucose indexes level

Before treatment, there were no significant differences in the levels of FBG, 2 h postprandial blood glucose, and Glycosylated hemoglobin among the three groups (*P*>0.05). Compared with the scraping group and the ironing group, the levels of FBG, 2 h postprandial blood glucose, and glycosylated hemoglobin) in the combined treatment group were decreased (*P*< 0.05), as shown in **Figure 3**.

Safety evaluation

There was no significant difference in the distribution of grade I, II, and III DR in the combined treatment group compared with the other two groups (P>0.05), as shown in **Table 8**.

Central retinal artery flow

The resistance index of the combined group after treatment was lower than that before treatment, and lower than that of the hot ironing group and scraping group, as shown in **Table 9** (*P*<0.05).

Discussion

DR is a chronic disease with progressive development. Long-term medication brings many complications as well as burdens patients with high costs [11]. Traditional Chinese medicine in the treatment of DR has its unique advantages, such as simple operation, convenience, and low cost. At present, there is still a lack of effective TCM treatment plans for DR. Holographic scraping and TCM hot ironing can improve local blood circulation and clear the liver and eyes, respectively. It is worth discussing whether the combination of the two can play a synergistic effect in treating DR.

In Chinese medicine, Radix Ophiopogonis has the effect of nourishing Yin, moistening lungs,

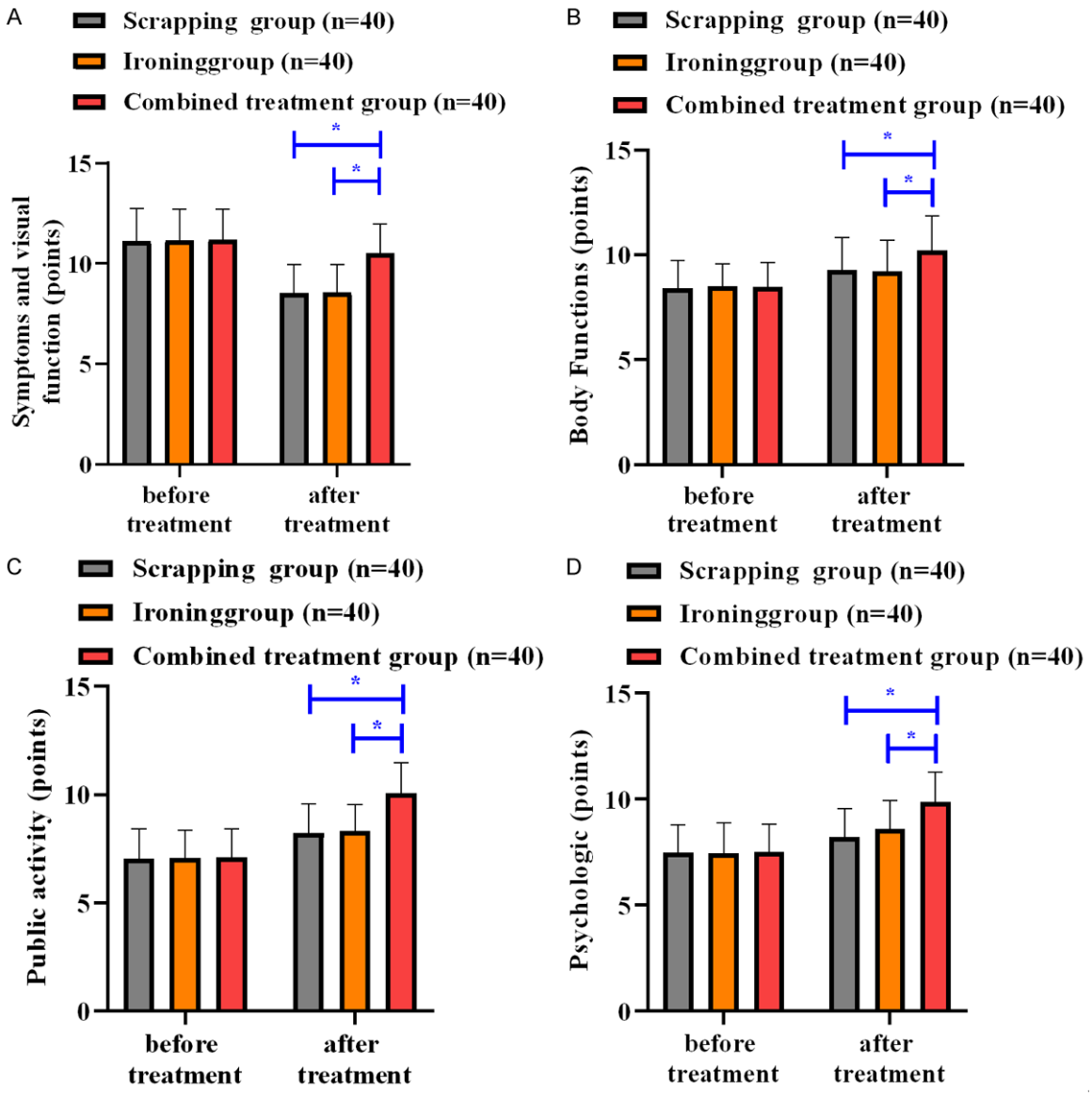

Figure 2. Quality of life. Note: (A) Symptoms and visual function, (B) Body Functions, (C) Public activity, and (D) Psychologic. *, $P<0.05$.

nourishing the stomach, and producing fluid; and by combining with Schisandra Chinensis, it can replenish Yin deficiency. Sticktight has the effect of clearing heat and detoxifying, promoting blood circulation, and reducing swelling. Western studies have shown that Sticktight has a cholinergic-promoting effect and can increase saliva and tear secretion. Chrysanthemum and Buddleja officinalis Maxim have the effect of clearing heat, nourishing the liver, and brightening the eyes. The Pipewort has the function of evacuating wind-heat, improving eyesight, and removing nebula. Parched semen cassia has the effect of removing wind, heat dissipation, nourishing the liver and kidney, brightening eyes, and purging water. Glossy privet fruit can strengthen the waist and knee, strengthen muscles and bones, and strengthen the Yin's kidney, and it has a good therapeutic effect on the wind-heat red eye. Schisandrae Chinensis can nourish Yin and solidify essence, protect the liver, and delay aging. Betelnut has the effect of rationalizing qi and can promote the production of body fluid. Forsythia seed can clear the eye and reduce swelling and relieve pain. Salvia miltiorrhiza can promote blood circulation and remove blood stasis, and by matching Earthworms, it can relax tendons and

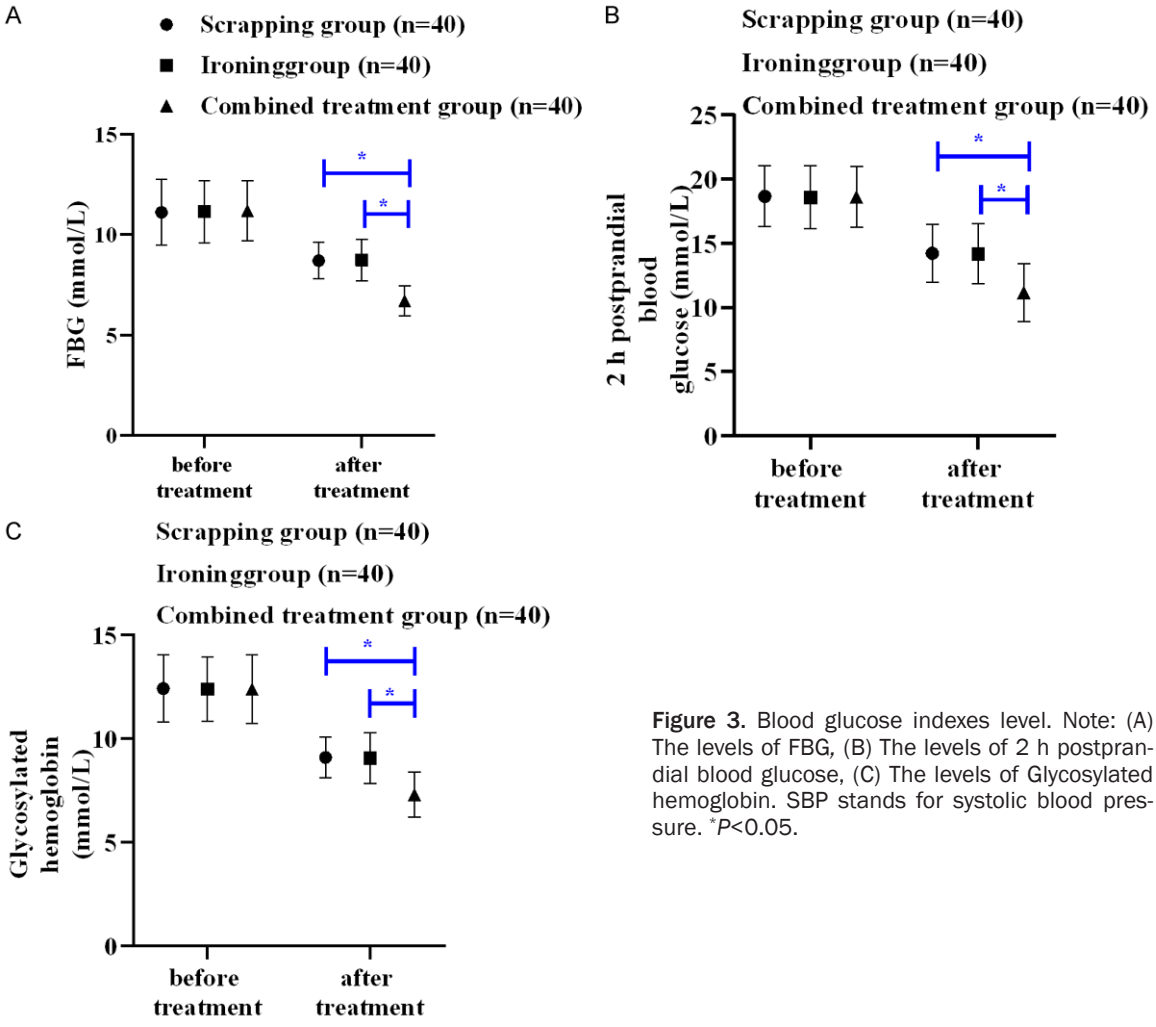

Figure 3. Blood glucose indexes level. Note: (A) The levels of FBG, (B) The levels of 2 h postprandial blood glucose, (C) The levels of Glycosylated hemoglobin. SBP stands for systolic blood pressure. *P<0.05.

Table 8. Safety evaluation [n (%)]

Group	Grade I	Grade II	Grade III
Scraping group (n=40)	30 (75.00)	10 (25.00)	0 (0.00)
Ironing group (n=40)	31 (77.50)	8 (20.00)	1 (2.50)
Combined treatment group (n=40)	33 (82.50)	7 (17.50)	0 (0.00)
H		0.694	
P		0.707	

channel collaterals. Borneol has the effect of dredging the orifices, removing the eyes, reducing swelling, and relieving pain. The above-mentioned TCM herbs were powdered and heated and then applied on the eyes of patients for hot ironing, which could exert the synergistic effect of TCM in the prescription to achieve the effect of warming the meridians and collaterals and promoting qi and blood circulation [12, 13]. According to the results of this study, compared with holographic scraping alone and TCM hot ironing alone, holographic scraping combined with TCM hot ironing could significantly reduce the TCM symptom score and blood glucose indexes level of patients, improve the total effective rate in TCM symptom relief and fundus symptom relief, and enhance the quality of life of patients [14, 15]. Scraping the holographic point area of the eye could improve the excitability and interaction of sympathetic and parasympathetic nerves, relax and relieve eye fatigue, and dredge the meridians and collaterals of the eyes [16]. Relevant studies [17] show that scraping therapy can effectively relieve the symptoms of low back pain. TCM hot ironing could clear the liver and improve vision. Through eye hot ironing, the synergistic effect of TCM could be enhanced to warm up the meridians and collaterals and promote qi and blood circu-

Table 9. Central retinal artery flow

Group	Peak systolic velocity (cm/s)		End-diastolic maximum blood flow velocity (cm/s)		Resistance index	
	Before treatment	After treatment	Before treatment	After treatment	Before treatment	After treatment
Scraping group (n=40)	17.38±5.22	18.18±5.43	4.66±1.22	4.86±1.31	0.62±0.10	0.58±0.08
Ironing group (n=40)	17.16±5.51	18.21±5.37	4.57±1.39	4.96±1.16	0.63±0.07	0.60±0.07
Combined treatment group (n=40)	17.71±5.26	18.83±5.57	4.83±1.23	5.03±1.52	0.63±0.08	0.53±0.06*
F	0.108	0.181	0.424	0.163	0.188	5.101
P	0.898	0.835	0.655	0.850	0.829	0.008

Note: *indicates that compared with the same group and before treatment, $P<0.05$.

lation [18, 19]. A study [20] has shown that acupoint compression can reduce postpartum urinary retention, uterine contraction pain, and depression in pregnant women with vaginal delivery. Another study [21] has shown that hot herbal application has a good effect on myofascial pain. This study also confirmed the effectiveness of hot herbal compresses. When holographic scraping and eye hot ironing are combined in the early treatment of DR, they exert a synergistic effect [22]. A study of combined TCM therapy [23] showed that cervical traction and TCM hot compress in the treatment of cervical spondylosis could significantly improve the clinical effect. In addition, a systematic study showed that Buyang Huanwu decoction combined with acupuncture was effective in improving the clinical symptoms of sequelae of stroke [24]. It indicates that the combined application of traditional Chinese medicine treatment can improve the effectiveness of a single treatment. Li et al. [25] showed that wrist and ankle acupuncture combined with the hot pressing of Chinese herbal medicine can effectively relieve the pain of cervical radiculopathy, affect the concentration of ET-1 and CGRP, promote the recovery of cervical spine function and improve the quality of life, which was similar to the results of this study. According to the statistical results, the distributions of grade I, II, and III DR in the combination treatment group were not significantly different from that in the scraping group and ironing group, indicating that the holographic scraping combined with Chinese medicine hot ironing scheme in the treatment of DR did not increase adverse drug reactions. Therefore, holographic scraping combined with an eye-hot ironing scheme is feasible with practical clinical significance. In addition, after the combined treatment, the blood flow resistance index of the patients was significantly decreased, and was significantly lower than that of the other two groups with a single treatment, indicating that holographic scraping combined with the TCM ironing program can significantly increase retinal blood perfusion, which has a positive significance for the early treatment of DR [26].

Strengths and limitations

This study was the first to explore the application of holographic scraping combined with TCM hot ironing in early DR, which was innovative and could provide a new direction for the development of TCM therapy in DR. Following the results of this study, the application of holographic scraping combined with hot ironing of TCM in the early intervention of DR could effectively improve the treatment effect and quality of life. If this combination program could be successfully promoted and applied, it would benefit DR patients to a great extent. Therefore, this study could promote the development of clinical treatment of DR to a certain extent.

However, due to its retrospective nature, it is difficult to avoid the influence of uncontrollable factors. In addition, the scope of case selection was limited, and the number of patients included was small. So, the results of this study may be biased. Therefore, we will conduct prospective and multi-center studies with large sample sizes to enhance the reliability of our results.

Conclusion

To sum up, the application of holographic scraping combined with Chinese medicine hot ironing in the treatment of early DR could alleviate the symptoms of blurred vision and dry eyes. Early intervention of retinopathy can reduce the disability rate and improve the quality of life of

patients, which has a better effect than simple therapy.

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Disclosure of conflict of interest

None.

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