

Research on the intervention effect of after-dinner quick walking on community fatty liver.

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Abstract

Objective: To study the effect of after-dinner quick walking on patients with community fatty liver.

Method: Research methods including experiment and mathematical statistics were used in the group experiment of 64 cases of patients with community fatty liver.

Result: The data of the experimental group were as follows: Aspartate Transaminase (AST) (20.54 ± 3.04), Alanine Aminotransferase (ALT) (12.21 ± 2.01), Alkaline Phosphatase (ALP) (74.54 ± 5.69), and γ -Glutamyl Transpeptidase (γ -GGT) (13.24 ± 2.13), with total effect of 93.75%; which were significantly better than the control group: AST (28.57 ± 2.54), ALT (20.54 ± 3.17), ALP (93.57 ± 4.68), and γ -GGT (40.59 ± 6.37), with total effect of 75.00%. The differences were statistically significant, with $P < 0.05$.

Conclusion: The effect of after-dinner quick walking is significant in the treatment of community fatty liver and it may improve liver function, which makes it a simple intervention measure that meets the community requirements.

Keywords: After-dinner quick walking, Community fatty liver, Intervention effect.

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Introduction

Fatty liver refers to the excessive fat accumulation in liver cells caused by a variety of reasons. Fatty liver has become the second liver disease after viral hepatitis, which is threatening the health of the Chinese people. It is a common clinical phenomenon, rather than an independent disease. It is strongly associated with the metabolic syndrome and may be the leading cause of chronic liver disease worldwide, reaching epidemic proportions in many high-income countries [1,2]. Compared with the general population of similar age and gender, fatty liver increases the risk of endstage liver disease, hepatocellular carcinoma [3]. Perhaps more importantly, the authors found that fatty liver was associated with liver related mortality but not with Cardiovascular Disease (CVD) mortality [4]. Simple Steatosis (SS) rarely progresses to advanced disease whereas in approximately 20% of patients with Non-Alcoholic Steatohepatitis (NASH), it progresses to fibrosis and cirrhosis over a 15 year time period [5]. It might be light without any symptom or severe with serious symptoms. Generally, fatty liver can be reversible in the early stage by early diagnosis and timely intervention. But it may become cirrhosis after long-term development. In some serious cases, patients may suffer liver failure, which has a great influence on the life quality. In recent years, with the changing lifestyle and diet structure, the number of patients with fatty liver is increasing year by year. Exercise therapy and drug therapy are key methods to treat fatty liver [1]. In the practical application,

exercise therapy is much simpler, more economic, and convenient, which is more likely to meet the community requirements and more easily to be accepted by patients. The intervention results of 64 cases of patients with community fatty liver were as follows.

Research Object and Methods

Research object

64 cases of patients with community fatty liver from March 2016 to March 2017 were selected as research objects. All patients had different degrees of weak, liver ache, maldigestion, and hepatosplenomegaly. Key phenomenon includes increased γ -Glutamyl Transpeptidase (γ -GGT), serum transaminase, and Alanine Aminotransferase (ALT). Patients with viral hepatitis, diabetes, total parenteral nutrition, heart disease, drug-induced liver disease, hepatolenticular degeneration, and poor cardiopulmonary function were excluded. All patients were informed with the research subject: Research on the Intervention Effect of After-Dinner Quick walking on Community Fatty Liver. All patients were randomly divided into two groups, with 32 cases in each group.

Research methods

The control group was given diet guidance and health education, while the experimental group was given after-dinner quick walking exercise on that basis.

For the diet and health education intervention of the control group, the nurse introduced detailed knowledge related to fatty liver, including that liver cirrhosis and hyperglycemia were key factors causing fatty liver. In this way, patients knew that fatty liver was reversible and controllable disease, with knowing the importance of changing their bad habits [2]. Patients were told to eat food of low fat, high protein, and low calorie, with avoiding overeating. 20 g cellulose and 2000 ml water should be taken every day. The sugar should be kept between 50% and 60%, fat lower than 20% to 25%, and protein between 15% and 20%. Alcohol and tobacco were prohibited.

Patients in the experimental group were given after-dinner quick walking on the above basis, with the speed of 4.5 to 6 km/h. Patients could walk 1 km in 10 min. Elder patients could gradually speed up after adaption. Patients needed to walk for once or twice every day at reasonable time duration in a day for 30 to 70 min and further than 3 km. In this way, the effective walking distance should be 6 to 8 km. During walking, patients should open their shoulders, with head high [3], and keep their hips and shoulders perpendicular to the ground level, with deep breath and quick arm swinging. If there were some uncomfortable symptoms, such as dizziness and panic, patients should walk slowly or stop the exercise. At the same time, patients should pay attention to the blood sugar and blood pressure, with avoiding exercise on an empty stomach. The best time should be 1.5 to 2 h after dinner. Before quick walking exercise, take some stretches and speed up gradually after 5 min slow walk. The best speed should be 120/min for 30 min. If patients feel exhausted the second day after exercise, they should reduce the exercise [4].

Observation index: After the intervention, the echo of hepatic parenchyma decreased significantly in the far area, and

increased in the near area, and the merge blood flow signal decreased, with clinical symptoms improved significantly; after the intervention, the course degree and clinical symptoms of the patients showed no significant difference. The total effective rate referred to the sum of marked effective rate and effective rate. The AST, ALT, ALP, and γ -GGT of patients from both groups were observed.

Mathematical statistics

SPSS19.0 was adopted to study the related data of the 64 cases of patients with community fatty liver. The clinical effective rate was expressed by %, with chi-square test. The AST, ALT, ALP, and γ -GGT of patients with community fatty liver from both groups were expressed in the form of (mean \pm standard deviation). T test was adopted. $P < 0.05$ means significant statistical difference.

Results and Analysis

The control group included 12 cases of female and 20 cases of male, with the oldest of 76 y old, the youngest of 25 y old, and the average age of (51.23 \pm 4.23 y old); The experimental group included 13 cases of female and 19 cases of male, with the oldest of 75 y old, the youngest of 26 y old, and the average age of (50.54 \pm 5.58 y old). After comparative analysis of basic information of the 64 cases of patients with community fatty liver, there was no significant statistical difference, with $P > 0.05$.

Comparative analysis of liver function changes of both groups before and after treatment

Before intervention, the AST, ALT, ALP, and γ -GGT of patients from both groups showed no statistically significant difference, with $P > 0.05$. After intervention, the AST, ALT, ALP, and γ -GGT of patients from both groups showed statistically significant difference, with $P < 0.05$ (Table 1).

Table 1. Comparison of liver function changes of both groups before and after treatment.

Group	Number of cases	AST (U/L)		ALT (U/L)		ALP (U/L)		γ -GGT (U/L)	
		Before intervention	After intervention						
Experimental group	32	31.54 \pm 3.54	20.54 \pm 3.04	48.57 \pm 3.01	12.21 \pm 2.01	121.54 \pm 10.54	74.54 \pm 5.69	64.59 \pm 5.39	13.24 \pm 2.13
Control group	32	31.87 \pm 4.11	28.57 \pm 2.54	47.98 \pm 4.11	20.54 \pm 3.17	122.57 \pm 11.20	93.57 \pm 4.68	63.48 \pm 6.21	40.59 \pm 6.37
t		0.3441	11.4666	0.6551	12.5539	0.3788	14.6116	0.7636	23.0344
P		>0.05	<0.05	>0.05	<0.05	>0.05	<0.05	>0.05	<0.05

Comparative analysis of the effective rate of both groups

The total effective rate of patients with community fatty liver in the experimental group (93.75%) was significantly higher than that of the control group (75.00%), with $P < 0.05$ (Table 2).

Table 2. Comparison of the effective rate of both groups.

Group	Number of cases	Effect	Effective	Ineffective	Total rate	effective cases
Experimental group	32	20	10	2	93.75%	
Control group	32	12	12	8	75.00%	
χ^2					4.2667	
P					0.0388	

Conclusion

Fatty liver is caused by bad habits such as excessive drinking, lack of exercise, excessive high calorie and high fat food. It will affect the fat function, metabolism, and energy transformation, which will reduce the immunocompetence. If the fat cannot be burnt timely, the accumulated fat in the liver will affect the oxygen supply and liver blood, which will lead to inflammatory infiltrate, swelling, necrosis, and decreased liver metabolism function. In the case that false floccules hyperplasia of fiber, it may develop to liver cirrhosis. The clinical symptoms of fatty liver are not obvious in the early stage, which is generally diagnosed by B-ultrasonic examination [6,7]. Sports medicine research thinks running is a strenuous exercise. Therefore, elderly patients and patients with hypertension are not suitable for running, which may lead to various complications. However, quick walking can be a safe and simple exercise against the diseases [8]. Wang et al. reported that both a short-term lifestyle intervention and vitamin E therapy have an effect on Non-Alcoholic Fatty Liver Disease (NAFLD) in obese children. Compared with vitamin E, lifestyle intervention is more effective. Therefore, lifestyle intervention should represent the first step in the management of children with NAFLD [9]. Moran et al. found that nutritional education as an effective strategy to improve primary alterations in liver function associated with NAFLD in obese children who had NAFLD in Mexico [10-15].

Based on the research, after intervention, the AST, ALT, ALP, and γ -GGT of patients with community fatty liver from both groups shows significant difference in the total effective rate.

Above all, after-dinner quick walking may have a better effect on the treatment of community fatty liver than diet plan and education. It can improve the treatment effect and promote patients' indicators, with broad clinical application value.

Ethical Considerations

The study was carried out in compliance with the Declaration of Helsinki of the World Medical Association, and according to

a protocol approved by Medical Ethics Committee of Langfang Teachers University. The objectives of the study were explained to the study participants and verbal consent was obtained before interviewing each participant.

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