

CLINICAL STUDY

Effect of a basic Chinese traditional diet in overweight patients

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Abstract

OBJECTIVE: To evaluate the effect of a basic Chinese traditional diet (BTCD) in overweight patients on body mass index (BMI), lean mass, sense of hunger, and eating behaviour.

METHODS: A total of 694 enrolled subjects (218 male and 476 female) were divided into two groups: group A undergoing a 1200-Kcal BTCD, and group B undergoing a 1200-Kcal standard western diet.

RESULTS: From T0 (before treatment) to T1 (6 weeks after treatment), BMI was lowered in group A from (32.33 ± 5.51) to (31.96 ± 5.56) kg/m², and in group B from (31.62 ± 6.29) to (31.36 ± 6.47) kg/m². After treatment, patients in group A lost more weight (0.37 ± 0.52) kg than group B (0.26 ± 0.79) kg ($P=0.0044$). From T0 to T1, the mean lean mass of group A decreased from (16.48 ± 5.50) to (16.27 ± 5.45) kg. In group B, mean lean mass decreased from (16.93 ± 6.49) to (16.44 ± 6.29) kg. The difference was significant ($P=0.0078$).

CONCLUSION: The two diets could lead to lower

BMI, improve lean mass as well as eating behaviour and sense of hunger. However, the BTCD was significantly better than the western standard diet.

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Key words: Overweight; Thinness; Body mass index; Hunger; Basic traditional Chinese diet

INTRODUCTION

Preliminary studies on the treatment of overweight with traditional Chinese dietetics indicated interesting effects on weight loss and adipokine modification.¹⁻⁵ While these studies did not draw sound conclusions, they highlighted the potential effect of this diet on weight loss, sense of hunger, and eating behavior. Therefore, the aim of this study was to compare the effect of a basic traditional Chinese diet (BTCD) with that of a western standard diet, on body mass index (BMI), lean mass, sense of hunger, and eating behaviour in a sample of patients. We selected these endpoints because the above preliminary studies indicated that a BTCD was able to improve psychophysical conditions, and better preserve lean mass and body energy.⁶ This study was conducted on a sample of overweight patients for 6 weeks.

MATERIALS AND METHODS

Exclusion criteria

Subjects with cardiovascular or metabolic disease (diabetes mellitus, hypercholesterolemia, or arterial hypertension) were excluded.

Procedure

A total of 694 patients, 218 male and 476 female, mean age (49 ± 10) years and mean BMI (32.01 ± 6.10) kg/m²,

were randomized in two groups: group A and group B, between 22 May 2004 and 20 March 2005 at the Paracelso Clinic in Rome.

Group A consisted of 347 patients, 108 male and 239 female, with mean age (49 ± 9) years, mean BMI (32.33 ± 5.51) kg/m², and lean mass (16.49 ± 5.50) kg. The BTCD was served at lunch and supper, but not at breakfast, which complies with the Chinese tradition. The BTCD (1200.4 Kcal) contained 28.38% proteins, 37.26% carbohydrates, and 39.2% fats.

Group B consisted of 347 patients, 108 male and 239 female, with mean age (48 ± 9) years, mean BMI (31.62 ± 6.29) kg/m², and lean mass (16.93 ± 6.30) kg. Western standard diet (1266.3 Kcal) was served. The percentages of nutrients were similar to those of the BTCD: 28.8% proteins, 44.3% carbohydrates, and 30.4% fats.

Before and after treatment, patients' eating behaviour and sense of hunger were measured with questionnaires.

Exercise

All patients were encouraged to perform 15 min of aerobic exercise every day. Since the energy expenditure of the workout is about $0.066 \text{ Kcal/min}^{-1} \cdot \text{kg}^{-1}$, we estimated that for a man of 70 kg the energy expenditure was about 69.3 Kcal/day.

BTCD

The following variables were measured for all patients at both T0 and T1. BMI, lean mass measured with bioelectrical impedance analysis (Tanita BC-418 MA III), and eating behaviour and sense of hunger assessed with questionnaire.

Data analysis

Data were processed with SPSS (version 17.0.0, Chicago, IL, USA) and Excel. Student's *t*-test was performed for the difference between groups.

The study was approved by the Ethic Committee of the Inter-university Commission for Acupuncture Research. All patients consented to participating in the study by filling out the informed consent form approved by the Committee.

RESULTS

At T0, there were no significant differences in age, gender, lean mass, or sense of hunger between the two groups. From T0 to T1 in group A, BMI was lowered from (32.33 ± 5.51) to (31.96 ± 5.56) kg/m², with mean of matched-pair differences 0.37 ± 0.52 . Lean mass decreased from (16.48 ± 5.50) to (16.27 ± 5.43) kg, with mean of matched-pair differences (0.21 ± 0.08) kg. Eating behaviour score lowered from (98.03 ± 7.94) to (65.29 ± 7.07), with mean of matched-pair differences 32.74 ± 10.55 . The sense of hunger score decreased from 4.02 ± 0.85 to 0.49 ± 0.58 , with mean of

matched-pair differences 3.53 ± 0.82 .

In group B, from T0 to T1, BMI was lowered from (31.61 ± 6.29) to (31.36 ± 6.47) kg/m², with mean of matched-pair differences (0.26 ± 0.79) kg/m². Lean mass decreased from (16.93 ± 6.49) to (16.44 ± 6.29) kg, with mean of matched-pair differences (0.49 ± 0.84) kg. The mean eating behaviour score was lowered from 98.41 ± 8.52 to 85.29 ± 7.26 , with mean of matched-pair differences 13.12 ± 7.07 . The mean of the sense of hunger score decreased from 4.02 ± 0.58 to 2.01 ± 0.65 , with mean of matched-pair differences 2.01 ± 0.87 .

The comparison between the two groups showed a significant difference in favour of a BTCD. Indeed, the two diets had the same level of calories (1200 Kcal), yet patients in group A achieved more weight loss (0.37 ± 0.52) kg than group B (0.26 ± 0.79) kg ($P=0.0044$). Moreover, group A showed less lean mass loss (0.21 ± 0.08) kg compared with group B (0.49 ± 0.84) kg ($P=0.0078$).

The differences between the two groups in the scores of the eating behaviour and scores of the sense of hunger were significant. 11% of patients in group A and 3% of patients of group B showed a significant decrease in sense of hunger.

DISCUSSION

Obesity is defined as excessive fat accumulation, which poses a risk to health. However, since it is difficult to make an exact customary assessment of fat mass, the degree of obesity is usually defined in terms of BMI.⁷⁻¹⁰ Obesity is the main risk factor for chronic diseases such as type 2 diabetes, cardiovascular diseases, osteoarthritis, and cancer.^{11,12} While it was once a problem that affected only Western populations, obesity is now dramatically growing in developing countries as well, particularly in urban settings. From 2007-2008, the prevalence of obesity was 32.2% in adult men and 35.5% in adult women.¹³ The WHO estimates that by 2015, approximately 2.3 billion adults will be overweight and more than 700 million will be obese.⁹

The aetiology of obesity is multifaceted and includes genetic, social, environmental, behavioural, and psychological factors.¹⁰ In most parts of the world, diet is the first course for dealing with obesity. Diet is expected to induce not only weight loss but also fat mass loss while preserving lean mass, which is the most difficult endpoint. The second course is managing the weight, which can only be achieved by psychological motivation of patients.¹¹ In the outcomes of the two groups in our study, weight loss was significantly greater in group A than in group B. In another study with a smaller number of subjects, more significant differences in terms of BMI, waist measurement, and body weight were found.¹² However, the effect on BMI was not convincing because it is difficult to believe that two diets with the same quantity of calories could produce varying weight loss. Therefore, we focused our attention on

lean mass and eating behaviour.

Lean mass, as measured by bioelectrical impedance, is considered a reliable marker, unlike the loss of fat mass, which must always be assessed in relation to body water.^{14,15} Another interesting variable was the eating behaviour score. The mean score of group A was significantly better than that of group B. We speculated that this effect might be determined by the BTCD on the hypothalamic centres of hunger and satiation. In fact, the mean sense of hunger score of group A was lower than that of group B.

In summary, the results of our study showed that two diets, based on a very similar amount of calories and composition of proteins, fats, and carbohydrates, could lead to lower BMI and improvement of lean mass and sense of hunger. However, a BTCD was significantly better than a standard Western diet. The improvement of lean mass preservation in group A was the most relevant finding in the study, which could be considered as the main feature of the BTCD.

Based on these results, it could be useful to further investigate the biological mechanism underpinning the effect of a BTCD on the conditions of obesity. Further research should be conducted with better biological markers.

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