

The Effect of Weight Losing to Benign Prostate Hyperplasia Patients with Metabolic Syndrome

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Abstract

Objective: To explore the effect of weight losing to benign prostate hyperplasia patients with metabolic syndrome.

Methods: We chose 82 benign prostate hyperplasia patients who came for treatment in 2010 and divided them into group A and group B randomly. We measured body weight, height, and calculated body mass index, and we also measured blood pressure, fasting plasma glucose, total triglycerides, high density lipoprotein cholesterol, prostate specific antigen, prostate volume, and international prostate syndrome score. Group A received standard treatment; Group B got extra weight losing direction besides standard treatment. After six months, we compared the above-mentioned measurements.

Results: BMI, prostate volume, international prostate syndrome score and total triglycerides in group B are significant lower than group A.

Conclusions On the basis of standard treatment metabolic syndrome patients with benign prostate hyperplasia can benefit more from weight losing.

Keywords: Benign prostate hyperplasia; Metabolic syndrome X

Introduction

Benign Prostatic Hyperplasia (BPH) is a common disease of the aging male. There are a number of studies confirm that the common components of the Metabolic Syndrome (MS), such as obesity, hypertension, lipid disorders, are related to BPH [1]. Obesity is a basis for the reasons that lead to MS. This article compares the effect between the weight loss intensive treatments and conventional treatment to cure the MS associated with the BPH.

Materials and Methods

Materials

We choose 82 patients who came to Shandong University, Jinan Central Hospital Affiliated Cadres Care in 2010. These patients who were diagnosed the MS with BPH included in the study, aged 37 to 66 years, mean (48.3 ± 10.2) years. They were randomly divided into two groups, n=41 cases, the baseline data in table 1. The criterion is defined by Chinese Diabetes Society (CDS) criterion in 2004 that meet the following four components of the three or all of those selected: (1) Overweight or obese: Body Mass Index (BMI): ≥ 25.0 kg/m²; (2) fasting glucose (fasting plasma glucose, FPG) ≥ 6.1mmol/L and (or) the random plasma glucose ≥ 7.8mmol/L, being DM; (3) blood pressure ≥ 140/90mmHg and (or)being hypertension; (4) Fasting Triglyceride

(TG) ≥ 1.7 mmol/L and (or) fasting High Density Lipoprotein Cholesterol (HDL-c) men <0.9 mmol/L.

Methods

The weight and height of two groups of patients were measured to calculate body mass index, blood pressure, blood glucose, blood lipids, prostate-specific antigen, prostate volume, and record the patient's International Prostate Symptom Score (IPSS). With conventional therapy, group A patients took the antidiabetic, antihypertensive, lipid-lowering therapy for MS, and 5 α -reductase inhibitor finasteride 5 mg daily treatment for BPH. In addition to conventional therapy, the patient in group B lost weight by diet and enhanced physical exercise and no drugs were used. Six months later we compared the data.

Blood sugar, blood lipids were detected by the Bayer 2400 automatic biochemical analyzer. Prostate specific antigen was detected by radioimmunoassay and determination of prostate volume was done by abdominal B ultrasound measurement of prostate.

Longitudinal, transverse and anteroposterior diameter of the prostate volume is calculated by the formula longitudinal diameter × diameter × anteroposterior diameter of 0.52

Statistics analysis

All analyses were performed by using the PASW ver. 13.0 (SPSS Inc., Chicago, IL, USA). The two groups were compared in BPH with

Group	age (y)	BMI (kg/m ²)	SBP (mmHg)	DBP (mmHg)	FPG (mmol/L)	TG (mmol/L)
A	49.1 ± 9.8	27.7 ± 2.4	150.3 ± 19.9	85.8 ± 13.1	7.2 ± 2.3	2.5 ± 1.6
B	47.9 ± 10.6 ^a	28.1 ± 2.7 ^a	149.8 ± 20.8 ^a	88.6 ± 12.7 ^a	7.4 ± 2.6 ^a	2.8 ± 1.8 ^a
	HDL - c (mmol/L)	PV (ml)	PSA (μg/L)	IPSS score		
A	0.9 ± 0.32	35.9 ± 13.7	2.1 ± 5.1	19.1 ± 4.8		
B	0.83 ± 0.28 ^a	35.3 ± 14.1 ^a	2.0 ± 4.9 ^a	18.8 ± 4.6 ^a		

^ap<0.05 by T-test

Table 1: Comparisons of baseline data (mean ± SD).

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and without each metabolic component, by using the T - test. A *p* value of less than 0.05 was deemed as significant. Continuous variables were expressed as the mean ± Standard Deviation (SD).

Results

Baseline data

At entering the group, the two groups in age, body mass index, systolic blood pressure, diastolic blood pressure, fasting blood glucose, lipids, prostate volume, prostate specific antigen, and IPSS score there was no significant difference.

Data comparison after treatment

After six months of treatment, the BMI have significantly decreased ($P < 0.05$); the prostate volume decreased ($P < 0.05$); IPSS improved ($P < 0.05$); the serum triglyceride significantly improved ($P < 0.05$). The other indicators of the two groups had no significant differences (Tables 1 and 2).

Discussion

This study selected the MS patients with BPH, not only used in the treatment of the classic anti - prostatic hypertrophy drug 5 α reductase inhibitor, finasteride, but also by the treatment of metabolic syndrome to be strengthened and achieved good results. Insulin resistance and secondary hyperinsulinemia are important factors of the pathophysiology of metabolic syndrome increased BPH dangerous. Ozden et al. [2] studies have shown that BPH patients with metabolic syndrome have higher plasma levels of PSA, an annual growth rate PSA and prostatic transitional zone growth rate is significantly higher.

In the BPH patients with metabolic syndrome prostate grow more quickly. Weight loss treatment is the treatment of metabolic syndrome, the most fundamental and most effective, safest, and least side effects of treatment. This study found that after weight loss treatment patients with prostate volume and IPSS score has a better improvement ($P < 0.05$) than conventional symptomatic treatment. The previous report on obesity and BPH relations were contradictory. A veterans-based study reported that the BMI and the clinical diagnosis of BPH was negative related. Obesity clinical diagnosis of BPH risk is small [3]. However, another reported for the study of transurethral resection of patients come to the conclusion that obesity and PV increases as a positive correlation [4]. Xin et al. [5] studied 414 cases; 45 to 65 years old male, obese group and the overweight prostate volume were higher than the healthy group, suggesting that BMI and prostate volume are related. This study demonstrated that patients with metabolic syndrome after treatment of the prostate volume have been significantly reduced,

and after weight loss treatment the prostate volume has reduce more. So based on this study, we think that obesity play a role in prostatic hyperplasia. After weight loss treatment, the IPSS score markedly improve, the lower urinary tract symptoms mitigate, provide an experimental basis for future recommendations MS patients with BPH in weight loss treatment.

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Group	BMI (kg/m ²)	SBP (mmHg)	DBP (mmHg)	FPG (mmol/L)	TG (mmol/L)
A	27.2 ± 2.1	141.1 ± 20.5	76.6 ± 11.4	5.1 ± 1.4	1.8 ± 1.1
B	24.1 ± 2.2 ^a	139.6 ± 19.7 ^b	75.8 ± 10.6 ^b	4.9 ± 1.5 ^b	1.1 ± 0.9 ^a
	HDL-c (mmol/L)	PV (ml)	PSA (μg/L)	IPSS score	
A	1.04 ± 0.36	32.6 ± 9.7	1.4 ± 5.1	16.3 ± 4.6	
B	1.11 ± 0.32 ^b	27.3 ± 10.1 ^a	1.1 ± 5.6 ^b	11.8 ± 3.2 ^a	

^a $P < 0.05$, ^b $P > 0.05$

Table 2: Treatment in 6 months.