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Research Article

THE STUDY OF CUMIN ON BLOOD PRESSURE IN PATIENTS WITH DIABETIES TYPE II

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Abstract:

Background and Purpose: Diabetes is a common disorder in carbohydrate metabolism and a chronic disease. Blood pressure is being seen in 70% of diabetes patients. The role of Cumin in treatment of complications of diabetes also has been proven. Therefore, the aim of this study was to evaluate the effect of cumin on blood pressure of patients with diabetes type two.

Materials and Methods: This study was performed by double-blind clinical trial on 50 diabetic type two patients, who referred to Imam Khomeini Diabetes Clinic in Zabol. The criteria for entry into this study included Diabetes type two, Blood pressure higher than 140 mmHg on 90 mmHg, at least having a 6 months history of infection of diabetes, lack of mental disorders, non-insulin therapy, non-pregnancy and lactation, having a drug program with consideration of type of medication and did not use tobacco and alcohol. In case of recognizing any of these issues, the sample was excluded from the study. Samples were randomly divided into two group of 25 individuals without splitting during the study. At first, blood pressure was measured and then a cumin extract group and placebo control group consumed placebo for two months. Patients' blood pressure was re-measured. The software SPSS version 22 was used to analyze the data.

Findings: The difference in mean systolic and diastolic blood pressure in the cumin consumed group was statistically significant ($P < 0.0001$) before intervention. The mean systolic and diastolic blood pressure in the two groups, who consumed garlic, cumin and control group before intervention was not statistically significant ($P > 0.05$). But, this difference was statistically significant after intervention ($P < 0.0001$).

Discussion and Conclusion: In the present study, the effects of cumin on the improvement of blood pressure were observed. No special side effects were observed during the course of the project. Based on this, it can be said that complementary cumin can be effective in controlling complications of diabetes, including hypertension.

Key words: Cumin, Blood pressure, Diabetes.

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INTRODUCTION:

Diabetes Mellitus is one of the most severe metabolic disturbances associated with increased blood glucose, metabolism of carbohydrates, lipids, proteins, and relative or absolute insulin depletion (1). The incidence of this disease is increasing continuously, which implies a global epidemic (2). Diabetes type two is about 95-90% of cases of diabetes. According to the World Health Organization (WHO) estimation, the number of people infected from 171 million in 2000 will increase to 366 million in 2030. The organization has also predicted that the number of people with diabetes in Iran will be from 210300 (7.5%) in 2000 to 5215000 (6.8%) in 2025 (3). The complication of diabetes is very numerous, in the way that it almost involves all parts of body (4). Vascular complications of diabetes include neuropathy, nephropathy and retinopathy, and Macrovascular disease, which is one of the major causes of mortality in patients (5). Hypertension is being seen in 70% of diabetic patients. The risk of developing diabetes in people with high blood pressure is two time higher (4). Hypertension is one of the risk factors for cardiovascular disease and its control is of great importance. Blood pressure and diabetes mellitus are two main risk factors for atherosclerosis, which are responsible for early disability and high mortality in diabetic patients. Of the 1500 diabetic patients examined by Danish researchers, 51% of patients with diabetes type one and 80% of type two diabetic patients had hypertension above 90-90 mmHg (6). The first step in treating diabetes is to control blood glucose levels. This is possible through diet, physical activity, use of hypoglycemic agents and insulin therapy (8,7). Chemical medicine which are being used to treat diabetes have adverse effects. Insulin is one of these medicine that causes complications such as lip-hypertrophy and lipoatrophy. Concerned about the side effects of chemical medicine, the patient's failure to adhere to the medicine regimen and misuse of these medicine, and thus impairment of the precise control of the disease (9). Before the discovery of insulin as well as common antidiabetic medicine, diabetic patients were treated with medical herbs and traditional treatments. Over the past 10 to 20 years, laboratory and clinical studies have been carried out on plants used to treat diabetes, which some of them have shown significant effects in reducing blood sugar and blood pressure (10). Therefore, considering that the properties of reducing sugar and blood pressure have been proven by the use of some herbal medicines, it is possible that with diet, healthy lifestyle, regular exercise and the use of herbal medicines by diabetic patients, the amount of glucose and hypertension reduced in diabetic patients.

Nursing is one of the first professions to use complementary and alternative medicine.

Complementary medicine is used as an intervention for many nursing diagnosis and is therefore named in the classification of nursing interventions (11). Treating herbal medicines is one of the main components of complementary medicine (12). One of the herbs that will probably help cure diabetes is cumin. Cumin is called Cumin seed in English. In traditional medicine, cumin was used as an anti-obesity, anticonvulsant, antiepileptic, diuretic and stomach acid, and has recently been considered as an interactions associated with cigarette consumption with low-sugar and blood pressure, medications (15), the researcher was determined to study the effects of cumin on hypertension in patients with diabetes type two.

METHODS:

This study was carried out using a clinical trial. The statistical population included all patients with diabetes type two who referred to diabetes clinic of Imam Khomeini Hospital in Zabol. 50 patients with diabetes type two were selected, used the sample size formula and standard deviation of previous studies (16) by available sampling method from 2017.02.06 to 2017.02.25, and were randomly assigned and divided to two group consist of 25 individuals each, including an intervention group and control group. The criteria for entering this study include: diabetes type two, hypertension greater than 140 on 90 mmHg, ability to speak, at least having a 6 months history of infection of diabetes, lack of mental disorders, non-insulin therapy, non-pregnancy and lactation, having a drug program with consideration of type of medication and did not use tobacco and alcohol.

First, after explaining the goals of the plan for patients and obtaining written informed consent, a general information questionnaire including demographic information and disease information (duration of the disease, symptoms associated with the disease, source of information, consumable medicine) through interviewing each of the patients were studied. Systolic and diastolic blood pressure was measured in both groups. Blood pressure measurement was used to measure the blood pressure of the German machine. Patients were told to rest at least half an hour before measuring blood pressure and do not drink tea. During the measurement of blood pressure, the patients were placed in a sitting position and the patient's hand was maintained at the same level with his heart by the examining hand. At the first visit, blood pressure was recorded from both arms. In the event of a difference in pressure, the blood pressure, which was higher was considered. The intervention group received 100 mg cumin capsules to use after lunch and dinner. The placebo control group used the same appearance.

All patients received training on diet, activity level and medicine regimen. The principles of studying daily

were emphasized through text messages to patients. Patients were also excluded from the research in terms of medicine side effects and compliance with diet, medicine and activity levels, and in case of failure to observe any of the above. Two months after the start of the study, blood pressure was monitored in both groups. Data were analyzed by SPSS software version 22 and paired and independent t-test. Also, the significant level of P (05/0) was considered.

FINDINGS:

The number of participants in this study was 50, divided into two groups of 25 cumin and control users. The

mean age of the cumin group was 53.08 ± 5.79 and 52.96 ± 5.25 in the control group. Seven cumin groups consisted of 8 males (32%) and 17 females (68%) and control group including 7 males (26.7%) and 18 females (73.3%). There was also no complication from the use of garlic and cumin in participants.

Based on the findings in the cumin group, the difference in mean systolic and diastolic blood pressure before and after intervention was significant ($P < 0.0001$). This means that the consumption of cumin reduces blood pressure. But this difference was not significant in the control group ($P > 0.05$). (Table 1).

Table 1: Comparison of mean blood pressure before and after intervention in each group

P-value	statistical test	After intervention	Before intervention	Variable	
		Mean \pm standard deviation	Mean \pm standard deviation		
<0.0001	T pair	11.81 \pm 130.17	12.14 \pm 144.11	Systolic blood pressure	Cumin group
<0.0001		8.84 \pm 82.13	9.14 \pm 95.61	Diastolic blood pressure	
0.73	T pair	14.13 \pm 147.18	15.42 \pm 146.82	Systolic blood pressure	control group
0.67		7.42 \pm 93.14	9.73 \pm 94.11	Diastolic blood pressure	

According to the findings of Table 2, the mean systolic and diastolic blood pressure in the two groups of cumin and control group before intervention was not statistically significant ($P > 0.05$). (Table 2)

Table 2: Comparison of mean blood pressure before intervention in two groups

P-value	statistical test	Mean \pm standard deviation	Mean \pm standard deviation	Variable
		control group	Cumin group	
0.23	Independent t	146.82 \pm 15.42	144.11 \pm 12.14	Systolic blood pressure
0.13	Independent t	94.11 \pm 9.73	95.61 \pm 9.14	Diastolic blood pressure

Table 3 shows the mean of blood pressure in the two groups after the intervention. The mean systolic and diastolic blood pressure in the cumin consumed group was lower than the control group and statistically significant ($P < 0.0001$). (Table 3).

Table 3: Comparison of mean blood pressure after intervention in three groups

P-value	statistical test	Mean \pm standard deviation	Mean \pm standard deviation	Variable
		control group	Cumin group	
<0.0001	Independent t	147.18 \pm 14.13	130.17 \pm 11.81	Systolic blood pressure
<0.0001	Independent t	94.11 \pm 9.73	82.13 \pm 8.84	Diastolic blood pressure

DISCUSSION AND CONCLUSION:

The results of this study showed a significant difference between systolic and diastolic blood pressures in both cumin and control groups. So that the systolic and diastolic blood pressure in the cumin consumed significantly less than the control group. According to a review of study texts that directly examined the effect of cumin on blood pressure did not found. So, we looked at other medicine supplements like garlic. Recently reports have been provided on the anti-diabetic properties of cumin, and it has been shown that Asysteine in cumin reduces blood pressure. (17), which is consistent with the results of the present study, but its follow-up requires further research in this regard.

Traditional medicine Cumin was used as an anti-obesity, anti-seizure, anticonvulsant, diuretic, hypotensive and stomach-reducing drugs, and has recently been considered as an anti-diabetic medicine in some studies [13].

Parastoo *et al*. A study was conducted with the participation of 50 patients with type 2 diabetes with hyperlipidemia to study the effect of garlic pills on blood glucose, plasma lipids and blood pressure in 2005. The results showed that the mean blood pressure in the garlic recipient group did not differ significantly from the control group (16), which is consistent with the results of the present study.

The results of this study regarding the systolic blood pressure index in two cumin and control recipients showed that the mean systolic and diastolic blood pressure index was not significantly different in the control group before and after the intervention, but the mean of this indicator in the recipient group Cumin (compared to control group) had a significant decrease.

The results of Parastoo *et al*. (2005) showed that the mean systolic blood pressure in the garlic recipient group was significantly reduced, which was consistent with the results of the present study, but no significant changes in diastolic blood pressure were observed (16). The reason for this difference can be attributed to the duration of the intervention as well as the complementary medicine used. Because the duration of the intervention was 6 weeks in the study of nursing, and the duration of the intervention was 2 months.

Afkhami Ardakani, Kamali and Ardakani, participated in a study of 45 diabetic patients with diabetes type two in order to investigate on the effect of garlic on blood pressure in 2008. These patients were treated with Garsin tablet (Gol-Dara Company) for 4 weeks for 3 days. The results showed a significant decrease in diastolic and systolic blood pressure in the intervention

group compared with the control group (18), which is consistent with the results of the present study.

In the present study, the effects of cumin on the improvement of blood pressure were observed. Also, taking 3 servings of 300 mg capsule of garlic gave rise to high blood pressure in diabetic patients. Accordingly, it can be said that supplementation of cumin can be helpful in controlling complications of diabetes.

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