ORIGINAL ARTICLE

Effects of Nigella Sativa on HDL-c & Body Weight

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ABSTRACT

Hyperlipidemia with increased body weight are main cause of consideration on CAD. These pathological states eventually leading to development of metabolic syndrome are leading cause of morbidity and mortality throughout the world. Various drug groups and regimen are being used to handle these problems but none is absolute satisfactory due to their widespread side effects and low compliance. Conventional use of nigella sativa for many diseases are now emerging in allopathic discipline of healthcare to cure various diseases with good compliance with least side effects. This study was conducted in Lipid Research Centre, Pakistan Institute of Cardiology, Lahore, Pakistan, from October to December 2013. Study period was one month. Sixty male and female hyperlipidemic patients age range from 20 to 70 years were included in the research with written explained and approved consent. All patients were divided in two equal groups. In Group-A, 30 patients were advised to take two spoons of kalonji after breakfast for the period of four weeks. In group-II, 30 hyperlipidemic patients were advised to take placebo capsules after breakfast everyday for the period of four weeks. At the end of research work, mean values of all parameters with ±SD were analyzed statistically using paired 't' test. These results were compared with placebo therapy and observed that both parameters showed highly significant change, with p-value <0.001. We concluded from these results that kalonji is very effective herbal drug to increase HDL-c and decrease body weight.

Keywords: Body weight, High density lipoprotein cholesterol, Kalonji, CAD.

INTRODUCTION

Recently medical research conductors in developed countries estimate that many of the currently prescribed drugs have origin from herbs[1]. The best known examples include penicillin (from fungus), morphine and codeine (from the opium poppy seeds) and digoxin (from foxglove)[2]. Over sixty percent of the world population use herbs as medicine and over 70% of doctors in india prescribe plant-based medicines[3]. In the last fifteen years, natural medicine gained great popularity by many medical doctors around the world. The demand for information on herbs and supplements continues to increase[4]. The demand is driven by many more individuals seeking holistic approach to health care prevention and treatment[5]. Increased body weight and cholesterol are common risk factors for cardiovascular disease, the leading cause for morbidity and mortality among patients[6]. Kalonji is an easily available and acceptable remedy to treat increased body weight and dyslipidemia and at a low cost[7]. The seeds of Nigella sativa Linn. (Ranunculaceae), commonly known as black seed or black cumin, are used in folk (herbal) medicine all over the world for the treatment and prevention of a number of diseases and conditions that include asthma, diarrhoea and dyslipidaemia.

Nigella sativa (kalonji) is a small plant originating in the Middle East and is found abundantly, growing wild in Egypt, Asiatic Turkey and the Balkan States. The seed extracts from this plant are used by herbalists in the treatment of several medical disorders including lipid disorders. There are some limitations regarding use of nigella sativa seeds as they are characterized by a very low degree of toxicity. Two cases of contact dermatitis in two individuals have been reported following topical use[8].

MATERIAL AND METHODS

Sixty patients with high lipid profile were included in the research work conducted at Pakistan Institute of Cardiology, Lahore, Pakistan. Study was conducted in lipid concerned clinic, at the Hospital. The study was single blind placebo controlled. Duration of study was four weeks. Explained and written consent was taken from all participants. Research work on human beings and its objectives were approved from Ethical Committee of the Hospital. Exclusion criteria was alcoholics, chain smokers, patients suffering from any liver disease, renal disease, peptic ulcer, already on vital medicines for treating vital organs of the body. Gender of participants was both male and female

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patients, age range from 20 to 70 years. Patients were divided in two groups, i.e.; group-A was advised to take two tea-spoons of Kalonji after breakfast everyday for the period of four weeks. Group-B was on placebo therapy. The research work was conducted from October 2013 to December 2013. Values of HDL-cholesterol and body weight were determined by laboratory investigations and clinical examination of patients. High density lipoprotein cholesterol was estimated directly by using kit cat number 303489329. Body weight was determined by weight machine provided by Lipid Concerned Clinic of the hospital. Data were expressed as the mean ± SD and paired "t" test was applied to determine statistical significance as the difference. A probability value of <0.05 was considered as non-significance and P<0.001 was considered as highly significant change in the results.

RESULTS

In one month therapy by nigella sativa, HDL-cholesterol increased from 31.70 mg/dl to 36.01±1.80 mg/dl. Mean body weight decreased from 79.01± kg to 77.32±2.61 kg. Changes in these two parameters are highly significant statistically. In placebo group Increase in HDL-cholesterol was 0.11 % in one month. Placebo group decreased body weight from 76.73±2.19 kg to 76.56±2.71 kg in one month. All these changes are non-significant (p-value >0.005). Detailed changes are shown in following tables:

Group A (Nigella Sativa) showing before and after treatment values, percentage change in values and P-value in difference

	HDL-C	Body weight
Before treatment >>	31.70±3.11	79.01±3.01
After treatment >>	36.01±1.80	77.32±2.61
% change >>	11.94	2.11
P-value >>	<0.001	<0.05

KEY:±indicates standard error of mean, p-value >0.05 indicates non significant and P<0.001 indicates highly significant change in lipid profile. HDL-C values are measured in mg/dl and values of body weight are measured in kilograms.

Group-B (Placebo) showing before and after treatment values, percentage change in values and P-value in difference

	HDL-C	Body weight
Before treatment >>	35.87±2.22	76.73±2.19
After treatment >>	35.91±3.72	76.56±2.71
% change >>	0.11	0.22
P-value >>	>0.05	>0.05

Key: ±indicates standard error of mean, p-value >0.05 indicates non significant and P<0.001 indicates highly significant change in lipid profile. HDL-C values are measured in mg/dl and values of body weight are measured in kilograms.

DISCUSSION

In our results it is proved that HDL-cholesterol increased from 31.70 mg/dl to 36.01±1.80 mg/dl, when 2 spoons of kalonji were used for one month in 30 hyperlipidemic male and female patients. Paired "t" test was applied to analyzed these results. P-value was <0.001 for these parallel results which suggested significant changes in pretreatment and post treatment values. These results match with study by Morikawa T et al[9] who observed 9% increase in HDL-cholesterol when they used 2 spoons of kalonji in 39 hyperlipidemic patients. They also suggested that metabolic syndrome may also be managed by nigella sativa, if given for long period. They enlighten about complex factors of metabolic syndrome, and altered physiological processes may be corrected by kalongi therapy. In our research study, two spoons of kalonji reduced body weight of 30 male/female patients from 79.01± kg to 77.32±2.61 kg by one month therapy. Qidwai W, and H.B. Hamza[10] also observed same changes by their research study. It proved same effectiveness of kalonji in both studies. Zahida T et al[11] who proved that there is no effect on body weight when 2 spoons of kalonji are used for two months. They also mentioned that in some individuals' kalonji decrease appetite and in some it increases appetite. Possible reason for that paradox results may be due to genetic and environmental variations in these patients. Ramadan MF[12] described presence of various chemical ingredients which are responsible to decrease high levels of serum lipid levels and decreased blood pressure in rats. Administration of either the seed extract or its oil has been shown not to induce significant adverse effects on liver or kidney functions. It would appear that the beneficial effects of the use of the seeds and thymoquinone might be related to their cytoprotective and antioxidant actions, and to their effect on some mediators of inflammation. The pharmacological actions of the crude extracts of the seeds (and some of its active constituents, e.g. volatile oil and thymoquinone) that have been reported include protection against nephrotoxicity and hepatotoxicity induced by either disease or chemicals. The seeds/oil have antiinflammatory, analgesic, antipyretic, antimicrobial and antineoplastic activity. The oil decreases blood pressure and increases respiration. Treatment of rats with the seed extract for up to 12 weeks has been reported to induce changes in the haemogram that include an increase in both the packed cell volume (PCV) and haemoglobin (Hb), and a decrease in plasma concentrations of cholesterol, triglycerides and glucose.

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