

EFFECT OF GARLIC ON NORMAL BLOOD CHOLESTEROL LEVEL

S. BHUSHAN, S.P. SHARMA, S.P. SINGH, S. AGRAWAL,
A. INDRAYAN* AND P. SETH

*Departments of Physiology, Pathology and Biochemistry,
B.R.D. Medical College, Gorakhpur (U.P.)*

Summary: The effect of raw garlic on normal blood cholesterol level in males of the age group of 18-35 years was studied. The subjects, who never ingested garlic before, were given 10 g of garlic daily with their diet for two months. Fasting blood samples were investigated in respect of cholesterol before and after two months of garlic intake. Initially the blood cholesterol level ranged between 160-250 mg% which decreased significantly in all the subjects of experimental group after two months of ingestion of garlic. The slight decrease or increase in the blood cholesterol level of control group was not significant. The raw garlic can be advocated for daily ingestion in order to lower one's blood cholesterol level even if it is within normal limits.

Key words:

garlic

blood cholesterol

INTRODUCTION

Atherosclerotic process is enhanced by increased blood cholesterol level (8). The frequent association of ischaemic heart disease with hypercholesterolemia has stimulated search for substances which reduce blood cholesterol level. Many such substances were discovered (1,6) but they are reported to have adverse side effects and other disadvantages. Hence they could not be advocated for use in daily life. Efforts were made to isolate a promising hypocholesterolaemic agent out of the substances taken in routine diet. Mathur *et al.* reported hypocholesterolaemic activity of *Cicer arietarium* in albino rats and rabbits (9,10). Gupta and Mehrotra (7) demonstrated that oral administration of onion lowered the experimentally induced alimentary lipaemia in human beings. Bordia *et al.* (3) has reported the protective action of garlic (6) and onion in human subjects against fat induced hypercholesterolaemia. They observed (4) the more potent action of garlic compared to onion on induced hypercholesterolaemia in rabbits. None of the above workers have reported the effect of these substances on normal blood cholesterol level.

Bhushan *et al.* (2) have reported the hypocholesterolaemic action of raw onion on normal blood cholesterol level in human beings but the effect of raw garlic on normal blood cholesterol level have not been investigated so far. Therefore, it was felt desirable to undertake the present study.

*Present address : Department of Social & Preventive Medicine, B.R.D. Medical College, Gorakhpur (U.P.)

MATERIALS AND METHODS

The present study was carried out on 25 healthy adult males between the age of 18-35 years. Care was taken to include only those persons who had never taken garlic before. They were clinically examined and their routine investigations were done to exclude any disease. The fasting blood samples were collected in each subject and the serum cholesterol was determined by Sackett's method (11).

The subjects were randomly divided into two groups. One group of 15 subjects formed the experimental group and the remaining 10 persons acted as control. The subjects of experimental group were given 10 g of raw garlic daily with their diet for two months. During the test period intake of any drug, onion, smoking or tobacco chewing was not permitted and the physical activity was restricted. At the end of experimental period, their fasting blood samples were collected and estimation of serum cholesterol was done. Special care was taken to use a separate sterilized dry syring for taking each sample of blood.

One tailed paired 't' test was applied to check statistical significance of the changes observed.

RESULTS

The blood cholesterol level of the subjects before starting garlic intake ranged between 160-250 mg% which lay within the normally accepted range (13). After two months ingestion of raw garlic daily with their meals the serum-cholesterol lowered down. The average decrease per subject was observed to be 33.20 mg%. This is about 15% of the initial average level and is highly significant ($P < 0.0001$). None of the subjects in experimental group showed stationary or elevated serum cholesterol level. Against this, the serum cholesterol level in control group showed an average decrease of 1.4 mg% only which is statistically not significant ($P > 0.10$). A comparison of the results of the experimental group with the control revealed a significant decrease of serum cholesterol level in experimental group ($P < 0.05$).

DISCUSSION

Garlic (*allium sativum*) has an essential oil which contains allylpropyldisulphide, diallyldisulphide and two other as yet unidentified sulphur containing compounds (12). Active principle of garlic is essential oil which chemically seems to be a combination of sulphur containing compounds mainly allylpropyldisulphide and diallyldisulphide. The concentration of essential oil in garlic is 0.06-1% (12).

It is quite evident that the initial serum cholesterol level of the subjects lay well within the normal limits (Table I). After two months ingestion of raw garlic with their

TABLE 1 : Effect of ingestion of garlic on serum cholesterol level.

Particulars	Experimental group (15 subjects)			Control group (10 subjects)		
	Initial	After two months	Difference	Initial	After two months	Difference
Mean (mg.%)	223.07 ± 54.05	189.87 ± 28.37	33.20 ± 15.25	206.20 ± 29.92	204.80 ± 26.43	1.40 ± 8.28
Percentage decrease in two months	x	x	14.96	x	x	0.37
Significance	x	x	Significant (P < 0.0001)	x	x	Not significant (P > 0.10)

diet the blood cholesterol level was considerably lower in each individual. Bordia *et al.* (3) have suggested the usefulness of garlic in preventing alimentary hyperlipaemia in patients of diabetes, hypertension and in patients with family history of stroke or heart attack. Similar effects of onion and garlic have also been reported in rabbits (4) and in human beings (7) after induced hypercholesteroleamia. However, they have not observed the effect of garlic on normal blood cholesterol level in human beings which could be of use in daily life. Bhushan *et al.* (2) have revealed the hypocholesterolaemic effect of raw onion on normal serum cholesterol level in human beings. Our findings in respect of garlic are parallel with the earlier reported work (2). The present work suggests that the garlic has got plasma clearing effect in respect of cholesterol and it also suggests that garlic eaters may have lower blood cholesterol compared to those who do not eat garlic. Further studies are advocated to confirm the validity of this observation.

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