
Hypolipidemic potential of *Panicum miliare* on selected cardiovascular subjects

Received : 24.12.2006

Accepted : 08.02.2007

**Radha R., Vijayalakshmi. P
Avinashilingam University for
Women, Coimbatore-641 043.
Tamilnadu, India.**

ABSTRACT

Hypolipidemic effect of Samai (.i.e. *Panicum miliare*) on selected fifty cardiovascular patients were studied for a period of sixty days (25 control; 25 supplemented with Samai). Lipid profiles were analyzed before and after supplementation period for both control and experimental group. It was heartwarming to note that all the lipid values with the exception of HDL – cholesterol had reduced after supplementation with Samai and the reductions were statistically significant at 1 per cent level. There was a mild increase in the HDL cholesterol level, which was desirable.

Keywords : Prevalence- cardio vascular disease – supplementation – *panicum miliare*- lipid profile

INTRODUCTION

Cause- specific mortality data indicate that cardiovascular disease is already an important contributor to mortality ¹.

It causes about half of the deaths in our country today in one form or another, either as a heart attack, or a sudden death on dying of congestive heart failure ².

An estimated 16.7 million or 29.2 per cent of total global deaths result from the various forms of cardiovascular disease (CVD), many of which are preventable by action on the

major primary risk factors: unhealthy diet, physical inactivity and smoking. More than 50 per cent of the deaths and disability from heart disease and stroke which together kill more than 12 million people each year can be cut by a combination of simple, cost-effective national efforts and individual actions to reduce major risk factor such as high blood pressure, high cholesterol, obesity and smoking ⁵.

Diet is the major factor associated with cardiovascular disease (CVD). Cereals, Millets, whole pulses, legumes, vegetables and fruits had inverse relation with CVD risk factors ⁷.

Millet protein contains amino acids in balanced proportions and is rich in methionine, cysteine and lysine. These are especially beneficial to vegetarians who depend on plant food for their protein nourishment. The grain contains a high proportion of carbohydrates and dietary fiber, which helps in prevention of constipation, lowering of cholesterol and slow release of glucose to the blood stream during digestion important vitamins namely thiamine, riboflavin, folic acid and niacin are present in high quantities. It is reported that cardiovascular disease, duodenal ulcers and hyperglycemia occur rarely in regular millet eaters ⁸.

Having these facts in mind a supplementation study was done with fiber rich millet Samai (i.e. Panicum miliare)

METHODOLOGY

Supplementation with Fiber rich millet:

Non – water soluble fibers have lipid lowering effects and is considered important for good health because of their role in increasing stool bulk and laxation. Fiber supplementation represents a safe and effective addition to conventional diet therapy, because diet modification is the initial approach to the clinical management of hyper cholesterolemic subjects ⁹.

Fifty cardiovascular patients were selected from Guhan hospital, out of whom 54% were men and 55% were women. They were in the age group of 40-65 years. From among these subjects 25 were selected for supplementation purposes and 25 served as controls.

Millet was purchased from the market and cleaned to remove the unwanted soil particles, stone and sand. Then they were slightly powdered to remove the hard husk. Then they were put into individual packets containing 60g containing 23 g of fiber in an effort to increase the fiber content of the diet to normal requirements ie 30-40 gm a day ¹⁰.

These packets were distributed to the patients with the advice that the contents of each packet to be cooked on each day and consumed in the form of either porridge or as a substitute for rice for a period of two months.

Both for the control (non – supplemented) and experimental group the initial and final values for the different lipids were estimated before and after supplementation.

RESULTS AND DISCUSSION

Table I
Lipid Profile of the Control group

S.No	Lipids mg/dl	Desirable Value	Supplemented group		't' value
			Mean \pm S.D		
			Initial	Final	
1.	Total Cholesterol	<200	255.30 \pm 20.76	242.1.9 \pm 13.44	4.03 **
2.	HDL – Cholesterol	>30	37.0 \pm 4.98	38.40 \pm 5.66	3.37 **
3.	LDL- Cholesterol	<130	142.2 \pm 23.85	129.86 \pm 24.69	3.39 **
4.	VLDL- Cholesterol	<30	76.19 \pm 23.61	73.84 \pm 23.85	7.40 **
5.	Triglycerides	<150	381.2 \pm 118.3	369.0 \pm 119.0	7.05 **

** - significant at 1% level

Supplementation with Samai had a positive effect on total Lipid profile. From table II it is clear that total cholesterol it decreased from 255 mg/dl to 242 mg/dl. With regard to HDL – Cholesterol it increased from 37 mg/dl to 38 mg/dl which was considered as good. In VLDL cholesterol levels there was a definite reduction from 76.19 mg/dl to 73.84 mg/dl and with regard to triglycerides there was a good reduction from 381 mg/dl to 369 mg/dl

CONCLUSION

Thus the fiber rich millet Samai i.e. *Panicum miliare* was useful and effective in lowering profile of lipids and its fractions and increasing high density lipoprotein cholesterol among the selected male and female subjects.

Cardiovascular disease is on the increase globally. Numerous studies have shown that many risk factors leading to this condition can be reduced with life style modification. Furthermore cardiovascular disease has usually been a middle- aged disease, a study of adult and their preferred lifestyles illustrates the weak areas namely, - Low fibre intake , - Increasing Body Mass Index , - Low physical activity , - Increasing smoking , - Increasing alcoholism, - Increasing blood pressure, - Mental stress. This is where the stage is being set for a possible precipitation of this chronic disease in later life. Any healthy lifestyle modification program and good dietary habits has the potential to dramatically reduce the risks associated with the etiology of common chronic disease on a long-term basis.

REFERENCES

1. Reddy, K.S., Shab, P., Shah, T (1993) “Coronary Heart Disease Risk Factors in an Industrialized Population of North India”, *British Medical Journal*, Pp.413-418, 1993
2. Richard, P, “We have made enormous, strides in treating cardiovascular disease in all types”, *European Journal of clinical nutrition*, P.432, 2006

3. Jousbilahiti, P., Variainen, E., Tuomilehtos., Puska, P, “Diabetes Mellitus, Sex, Age, Cardiovascular Risk factors and Coronary heart disease: a prospective follow-up study of 14,786,1999
4. Kritchevsty, S.B (1999). “Beta-Carotene, Carotenoids and the prevention of coronary heart disease”, *J. Nutr.* Vol.129, Pp.5-8 (review), 1999
5. Kulandaivel, K “Cardiovascular diseases”, *I.JDAN*, Vol.39, No.1, *Pp.* 475-518, 2005
6. Mikode , M., and White, Health Implications, *Journal of American Dietetic Association*, Vol 36, No 9, P 126,1999
7. Hunnighake,D.B., Miller,V., Roser,J.C., Brown,N.,Howard,L.K.,SerioF,J.D., Hypocholesterolemic effects on dietary fiber supplement, *American Journal of Clinical Nutrition*, Vol.59, No.5, Pp 1050-1054 , 1994
8. Ghafoorunissa and Kamala Krishnaswamy 1995, Diet and Heart disease, National Institute of Nutriton, Hyderabad, Pp 11-12