

EFFECT OF PALATABLE GUAR GUM FORMULATION ON SERUM LIPIDS

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ABSTRACT: *This clinical study reports that the ingestion of 15 gm of Guar gum daily for a period of one month decreased the total serum cholesterol level by 9.4% and triglyceride level by 4%.*

INTRODUCTION

Dietary intake of some non-absorbable plant fibers has been claimed to affect glucose and lipid metabolism¹. Water soluble fibers, such as pectin and guar-gum, seem to be the most effective in eliciting changes in the metabolism of both carbohydrate and lipid, while insoluble fibers such as cellulose and wheat bran seem less active^{4,9}.

Guar gum is a gel-forming galactomannan polysaccharide derived from the Indian cluster bean *Cyamopsis tetragonoloba*⁴. Ingested raw Guar gum, hydrated or otherwise, is usually quite unpalatable and may lead to nausea and vomiting. Jenkins and his co-workers in 1978 pioneered the use of Guar crispbread in the management of diabetes. They also reported serum cholesterol disease in hypercholesterolemic patients showing guar gum effective in lowering total cholesterol level^{6,7}. Since the raw gum is usually unpalatable, we have studied the effect of commercially available flavoured guar gum granules (Carbotard) on the serum lipids.

MATERIALS AND METHODS

Twelve volunteers of mild hypercholesterolemia (above normal range) were taken into the study. The subjects were healthy and were not on any hypocholesterolemic drug. Guar gum formulation was ingested in a dose of 5g t.d.s. with normal meal for a period of one month. Twelve hour fasting blood samples were obtained before and after the retervention. The Guar gum formulation was obtained from jagged Pharma Pvt. Ltd. Bangalore, in a sachet of 5g each, commercially known as Carbotard granules. The dose was mixed with glassful of water (200 ml), and then consumed before or during meals. Serum Cholesterol and triglycerides were estimated by the method of Carr and Drecktor² and Foster and Dunn³ respectively.

RESULTS AND DISCUSSION

During the diet with 15g. of Guar gum, total cholesterol fall to 249 ± 21 mg | dl from 275 ± 27 mg | dl (9.4%) and triglycerides to 144 ± 41 mg | dl from 150 ± 60 mg | dl (4%). Table I shows the changes found in serum lipids during the study. Out of 12 cases 11 showed the fall in cholesterol level from 13

mg | dl to 46 mg | dl and no change in the cholesterol level of one individual, whereas in the case of triglycerides there was fall in triglyceride level of two cases 50 and 72 mg | dl respectively and two cases showed increase in the triglycerides level (10 and 20 mg | dl) and no change in the rest. Table II shows the individual changes in the serum lipids. The new formulation of guar gum was acceptable to the patients and appears to be palatable as there were no signs of nausea, vomiting and gastric disturbances in any of the subject.

Previous studies, using guar gum over 1 – 12 months have shown 10 – 17 ± fall in serum cholesterol^{6,7,8,10}. All the studies have shown no significant change in serum triglyceride levels. Our results support the previous studies within regard to serum cholesterol but the extent of reduction obtained seems to be insufficient, and a long term study may throw more light in understanding the effect of this water soluble fiber.

TABLE I
Effect of guar gum of serum lipids (Mean ± SD)

	Total Cholesterol mg/dl	Triglycerides Mg/dl
Before treatment	275 ± 27	150 ± 60
After treatment	249 ± 21	144 ± 41
Percent decreased	9.4 %	4%

TABLE II
Individual changes in Serum Lipid levels of the subjects

S. No.	Cholesterol Mg/dl		T.G. Mg / dl	
	Before	After	Before	After
1	241	220	41	45
2	249	218	153	155
3	270	244	118	117
4	250	228	76	96
5	292	268	148	158
6	278	265	163	161
7	243	245	174	175
8	286	262	151	156
9	284	254	146	148
10	328	282	232	182
11	269	231	136	142
12	310	272	267	195

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