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Effect of Homoeopathic Preparartion of Garcinia Cambogia on Weight and Lipid Profiles of Obese Individuals: A Prospective Open Level Randomised Control Trial

Raja Manoharan[1]*, Rais Mohiuddin MI[1], Prasanta Rath[2], Karunakara Moorthy[3] and Sobiya Raj[4]

[1]*National Institute of Homoeopathy, Kolkata, India*
[2]*Associate Professor, Kalinga Institute of Industrial Technology, India*
[3]*Italian Institute of Technology: Genoa, IT*
[4]*Karunya University, India*

Abstract

Background: obesity is one of the most common contributors to ill health, mortality and reduced quality of life. Prevalence is increasing across the world especially in developed countries but now a days it is also increasingly found in developing countries including India due to change in life styles of the people. Garcinia Cambogia is an herbal remedy, used for treatment of various health conditions including obesity. The aim of the study is to find out the effect of the above mentioned medicine in reducing the weight of obese patients and their lipid profile.

Materials and Methods: A prospective, Open Randomized Controlled Trial was conducted. Thirty numbers of obese individuals having BMI ≥ 30 were divided in to three comparable groups of 10 in each group receiving either GC 3x (Decimal scale) ,GC6c (Centesimal scale) or placebo in the form of 4 globule thrice a day for three months. The medicine and dilutions were prepared according to the homoeopathic principles. Their weight, Total Cholesterols, Triglycerides, HDL, LDL VLDL were measured, before and after treatment.

Result: GC 3x and GC 6c produced significant reduction in weight (P <0.001) as well as in lipid profiles (P <0.001) in comparison to control group.

Conclusion: The Garcenia Cambogia prepared homeopathically in 3x and 6C potencies produced significant reduction in weight and lipid profiles. The initial diarrhea and constipation in certain study individuals required no medicinal intervention.

Keywords: Obesity; Garcenia Cambogia; Lipid Profiles; Rct

Introduction

Obesity is perhaps the most prevalence form of malnutrition. As a chronic disease prevalent in both developed and developing countries and affecting children as well as adult, it is now so common that it is replacing the more traditional public health concerns including under nutrition. It is the one of the most significant contributor to ill health [1].

In india 1.3% males and 2.5% females aged more than 20 years were obese in the year 2008 [2].

The first adverse effect of obesity to emerge in population in transition are hypertension, hyperlipidemia and glucose intolerance, while coronary heart disease and the long term complications of diabetes such as renel failure begin to emerge several (or decades) late [3].

Obesity is generally accepted as a worldwide epidemic with troublesome consequences. A trend of increasing prevalence of obesity and obesity-related co-morbidity and mortality was observed over the last few decades. Obesity is considered when there is an excess accumulation of fat in the subcutaneous tissue and the other parts of the body [4].

Natural products and plant-based dietary supplements have been used by people for centuries. Several ethno botanical studies have been reported that positive application of herbs in the treatments for obesity [5].

Garcinia has been used for centuries in Asian countries for culinary purposes as a condiment and flavoring agent in place of tamarind or lemon and to make meals more filling [6,7].

In Indian ayurvedic medicine sour flavors are said to active digestion. *Garcinia cambogia* is popularly known as Gummi-gutta, Malabar tamarind and brindle berry, belong to the family Clusiaceae. *Garcinia cambogia* grown for its fruit in Southeast Asia, India and Africa. It is an exotoxic yellowish pumpkin-like fruit and is about the size of an orange where it has long been flavored as a souring agent for pork and fish dishes.

The fruit of *Garcinia cambogia* has been traditionally used in food preparation and cooking, having a distinctive taste. *Garcinia* has also been used routinely for many centuries with no known toxicity. The fruit extract a seems to have inhibitory lipogenic properties, which means an ability to prevent the production of fat. This extract reduces appetite and to increase the energy level. *Garcinia* has garnered a lot of attention as a popular natural weight loss could be the reason for its substance called hydroxy citric acid/HCA.So the study is intended to be carried out to see the efficacy of homoeopathic preparations of *Garcinia cambogia* on obsesity [8].

***Corresponding author:** Raja Manoharan, National Institute of Homoeopathy, Kolkata, India, Tel: 09163955737; E-mail: drrajanih@gmail.com

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There is another preparation in homoeopathy of the sub species named as Gambogia prepared from resinous gum of Garcinia Morella, native to China [9]. But the present study is carried out by using fruits of *Garcinia Cambogia*

Aims and Objectives

To evaluate the effect of Garcinia camogia 3X and 6C potencies on obese subjects and lipid profiles of such individuals.

Materials and Method

Garcinia Cambogia fruit was collected from, Central Council for Research Homoeopathy Unit, under Ministry of AYUSH at Otty. Its mother tincture was extracted from fresh fruit by maceration with 95 % v/v of Ethyl alcohol. The 3X potency of the said medicine was prepared by using the dispensing alcohol as a vehicle as per Decimal scale preparation and 6C potency was prepared by using the dispensing alcohol as per centesimal scale preparation as per direction of Homoeopathic Pharmacopoeia of India.

Patients were included from IPD/OPD, Peripheral health centers of Vinayaka missions Homoeopathic Medical college & Hospital and Medical camps conducted by the college.

Inclusion & Exclusion criteria

The Patient were selected on the basis of their body mass index and case was taken according to the predetermined performa. Detailed physical examination were done for the patients. The patients having endocrine diseases were excluded from the study.Men and women with a BMI ≥30 and between the age of 15 to 55 were included in the study. The baseline data like weight, height & lipid profile of such individuals who were included in the study were collected.

Sampling Technique

The total 30 obese individual were included in the study and they were followed for a period of 3 months (January to March 2007). The Patients were divided into three groups of 10 each by the process of randomization. *Garcinia cambogia* 3x was given to one group and the same medicine in 6C potency was given to the second group. The third group also consisting of 10 obese individual were given a placebo and these individuals were regarded as the control group. All the 30 obese individuals were on their regular& normal diet. The three groups were compared with respect to the variables like weight and lipid profile at the beginning and the end of the study.

Method

Garcinia cambogia 3x, 6c potency and placebo were given four globules orally three times a day to obese individuals. The effect was evaluated by estimating the variables such as weight and lipid profiles.

Observation

Garcinia cambogia 3x group showed symptom like loss of appetite, diarrhoea for few days, after that they become normal. The *Garcinia cambogia* 6c group showed symptom like loss of appetite, constipation for few days, after that they become normal. The control group did not show any specific symptom like loss of appetite, diarrhoea and constipation. It was observed that, it reduced the total serum cholestrol and serum triglycerides level in both 3x and 6c and also a remarkable changes in the level of VLDL, LDL and HDL as evident from the following tables after carring out necessary stastical test of significance.

Result

The age and sex distribution of the obese individuals included in the study is given in Table 1. The study was carried out for three months among 30 obese people and the variable revealed that the reduction of weight in both GC3x and GC6c potency than the placebo group. In *Garcinia cambogia* 3x group showed the reduction of weight on average of 4.8 kg on an average (Table 2). In *Garcinia cambogia* 6c potency group showed the weight reduction on average of 6.8 kg on an average (Table 2). The findings for the other variables are given in Table 3.

(Figure)

Discussion

The age wise and sex wise distribution of obese patients as given in the Table 1 shows that the prevalence in the sample is more in the age group of 15-25 years irrespective of sex which means it affects predominantly the productive age group as compared to other age groups. However in contrast to the study findings a non-communicable risk factor survey phase 2 carried out in 2007-08 in eight states including Tamilnadu shows high prevalence of overweight in all age groups except in 15 to 24 years groups [10].

Table 2 shows that there is significant change in the mean weight before and after treatment with GC 3x (P- value -<0.001) and also in the GC6c (P- value -<0.001) groups in comparison to control group (P value >0.05) individually using paired 't' test for each group.

Table 1: Age and genderwise distribution of patients in various treatment groups.

Age Group	Sample groups						Total
	GC 3x		GC 6c		Control		
	Male	Female	Male	Female	Male	Female	
15-25	2	1	3	2	2	2	12
26-35	2	1	1	1	-	1	6
36-45	1	2	-	-	1	1	5
46-55	-	1	1	2	1	2	7
Total	5	5	5	5	4	6	30

Table 2: Changes with respect to weight before and after treatment among the three Groups (GC 3x, GC 6c and Control).

Sample treated	N	Mean		Variance		Calculated	Critical	P value
		Before	After	Before	After	t value	t value	
Control	10	92.1	92.05	80.98	83.63	0.16	2.26	**>0.05**
GC 3x	10	81.6	76.8	72.9	78.4	19.24	2.26	**<0.001**
GC 6c	10	95.1	88.3	206.1	207.1	10.25	2.26	**<0.001**

Few previous studies shows that GC administration reduces weight [11,12] although other has not found enough evidence [13] or doubt about its long term effects because there are not reported on more than 12 months of administration [14].

Table 3 shows that there is a significant change in the Mean Weight as well as the lipid profile (e.g. Total Cholesterol, Triglycerides, HDL, LDL and VLDL) Levels before and after treatment with GC 3x and GC 6c in comparison to control groups as suggested by the P values for each variables.

A study carried out by Maia-Landim et al showed that treatment

Table 3: ANOVA for comparing the difference in before and after treatment among the three Groups (GC 3x, GC 6c and Control) for each variables given below.

Sl.No.	Variables	Group	Mean Before	Mean after	F Critical #	F calculated	P Value
1	Weight	Control	92.1	92.05	3.354131	60.18776	**0<0.001**
		GC3x	81.6	76.8			
		GC6c	95.1	88.3			
2	Total cholesterol	Control	151.6	171.7	3.354131	29.69777	**0<0.001**
		GC3x	183	161.8			
		GC6c	181.7	161.1			
3	Triglycerides	Control	120.9	141.7	3.354131	41.69927	**0<0.001**
		GC3x	164.2	137.8			
		GC6c	148.3	129.2			
4	HDL	Control	39.9	37.3	3.354131	13.18229	**0<0.001**
		GC3x	37.8	40.6			
		GC6c	39.5	42.0			
5	LDL	Control	92.9	101.5	3.354131	6.751254	**0<0.001**
		GC3x	102.9	91.1			
		GC6c	109.1	97.1			
6	VLDL	Control	25.1	27.8	3.354131	8.034587	**0<0.001**
		GC3x	33.1	30.2			
		GC6c	29.9	27.0			
#ANOVA V_1= 27 ,V_2=2							

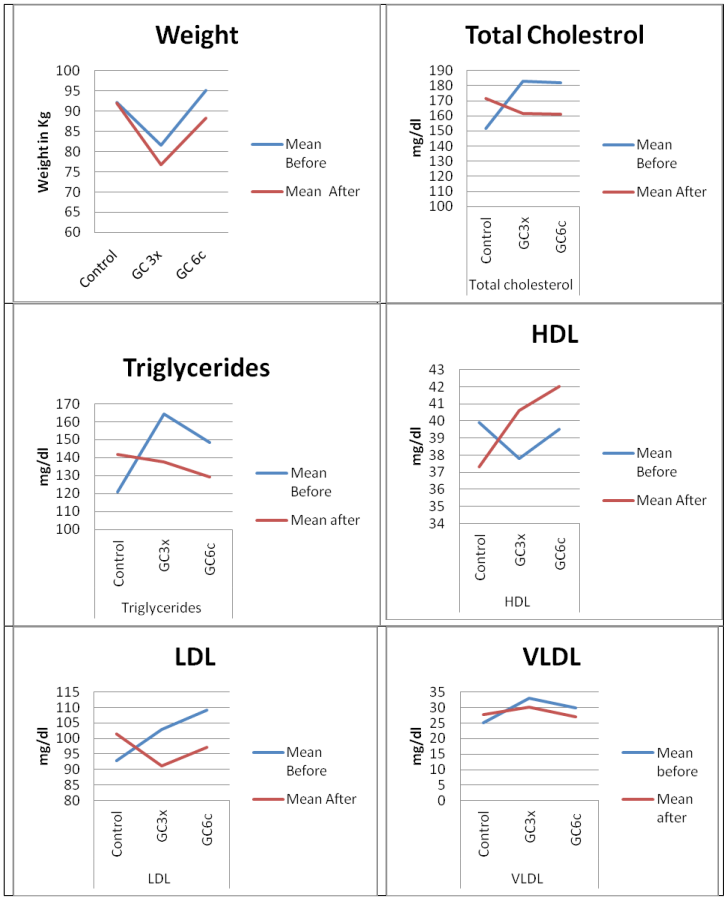

Figure 1:

with GC and GNN of people with overweight or obesity with different sex, age and affected by difference meta-bolic diseases decrease weight, fat mass, visceral fat, glu- cose, triglycerides and cholesterol levels together with an increasing basal metabolic rate without having any ad- verse effect. Effect of GC and GNN on level of metabolic markers. Glucose (a), Cholesterol (b) and Triglycerides (c). $^{**}p < 0.01$ vs treatment onset (0 months).

But they had taken glucose, cholesterol and triglycerides only, however in this study apart from weight, cholesterol, triglycerides HDL, LDL and VLDL also studied and results showed significant reduction in all the variables.

Conclusion

The present study shows that there is a significant reduction in weight in obese patient following administration of *Garcinia cambogia* 3x and 6c along with significant reduction in total cholesterol, triglycerides, HDL, LDL and VLDL levels before and after treatment as compared to Placebo. It is observed statistically that the effect of *Garcinia Cambogia* 6c is more than comparing the effect of 3x.The effect of the same medicine needs to tested in other potencies and may be compared with the other sub species prepared homeopathically such as *Garcini amorella* with higher sample size.

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