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A clinical effect of supplementation of turmeric powder on hyperlipidemic patients

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Abstract

The present study based on the effects of Turmeric powder (*Curcuma longa*) on serum lipid profile in hypercholesteremic patients was studied. Administration of turmeric powder of 1 gm orally TDS daily 30 days which produces highly significant ($p < 0.000$) reduction of serum total cholesterol, triacylglyceride and LDL-cholesterol in hypercholesteremic group but the change of serum HDL-cholesterol was not significant. The present study suggests that fenugreek seed powder would be considered as effective agent for lipid lowering purposes.

Keywords: LDL-cholesterol, Turmeric powder, Tri-glyceride

Introduction

Changes in lifestyle, such as increased energy intake and decreased physical activity, are causing overweight and obesity, leading to an epidemical increase in type 2 diabetes. It is well known that both obesity and type 2 diabetes increase inflammatory responses and cause metabolic disorders [1]. Hyperlipidaemia is the current medical as well social problem, specially associated with diabetes mellitus leading to increasing morbidity and mortality. The major risk factors of hyperlipidemia are associated with atherosclerosis which predisposes ischemic heart disease and cerebro-vascular disease [2]. In type 2 diabetic patients there is mild to moderate hypertriglyceridemia, low level of high density lipoprotein (HDL) and over production of very low density lipoprotein (VLDL). Serum total cholesterol is also increased [3]. In the present time modern medicine draws its nourishment from the rich legacy of traditional medicine. India has a rich history of using plants for medicinal purposes. Several plant products are known to exhibit creditable medicinal properties for the treatment of various ailments. *C. longa* Linn. (Turmeric) is a tropical plant that is cultivated extensively in Asia, India, China, and other countries. *C. longa* Linn, is a perennial herb, and a member of the ginger family. It can grow up to 1 m high, and has oblong, tufted leaves. The yellow spice is made from the rhizomes (roots), which are boiled, dried, and then ground. Notable among these, the active principle of turmeric (*Curcuma longa* Linn. Zingiberaceae) i.e. curcumin has been reported to have antihypercholesterolemic [4], anti-inflammatory [5] and as well as anticancer activities [6]. The present study is undertaken see the impact of supplementation of Turmeric powder on the lipid profile of hyperlipidemic patients.

Materials and Methods

The trial drugs Haridra, Methika, Ela, Jiraka were brought from the original source in a dry state from Varanasi market and identified by Dr. S.D. Dubey, Professor and former Head of Department of Dravyaguna, I.M.S., B.H.U., Varanasi. All drugs were pounded to fine powder form separately in Ayurvedic Pharmacy, B.H.U. and stored in air tight container. Three drugs of them are given to the patients in capsules form except Jiraka.

Dose and Duration of treatment

6 Capsules Haridra and Methika of 500 mg each were administered to the patients per day in three divided doses. 2 Capsules of Ela 500 mg each were administered to the patients per day in two divided doses. 6 gm. except Jiraka of 2 gm. each were administered to the patients per day in three divided doses. All drugs were presented in separate group of the patients. The duration of the treatment was fixed for one months, three months and six months intermediating with regular monthly follow up.

Study setting and patients

The clinical study was conducted at Diabetic clinic O.P.D. of the Department of Dravyaguna and O.P.D. of medicine in S.S. Hospital I.M.S. Banarans Hindu University, Varanasi-221005. Some of them were referred cases from other medical centers or from local doctors were also registered in this study. In this experiment one hundred twenty five (125) hyperlipidemics patient between the age group of 30 to 70 years, were selected from the secondary data maintained by the S.S hospitals in Banaras Hindu University (BHU). From the identified one hundred hyperlipidemic males and females sample of 30 male and 70 females. The selected patient were interviewed and information regarding their age, sex, education, income, dietary habits, family history, health status with reference to height, weight, BMI, waist hip measurements, signs and symptoms, complications, Clinical status, Blood pressure, diagnosis and type of treatment, were collected using an interview schedule for the selected one hundred patients. Bio-chemical parameters namely, lipid profile including total cholesterol, HDL, LDL and triglyceride were recorded for the sub samples in the clinical status. Who have had the fasting blood lipid level in the range and selected for supplementation, blood lipid profile was recorded after 30 days information regarding the dietary intake was obtained through the food weightment survey, weightment survey. Weightment survey was done for the sub sample.

Estimation of serum lipid profile

Serum lipid profile at the fasting state was estimated for all

the subjects in the using semi-autoanalyser. Serum total cholesterol was estimated using the procedure given by enzymatic hydrolysis method given by whole filed was used for the estimation of serum triglycerides. In Experimental group on Day 1st blood sample was taken as for base line study and advised to continue their Turmeric powder (1gm T.D.S) treatment. Again Blood samples were taken after 30 days interval. All the parameters of lipid profile.

Result and Discussion

Out of 24 selected hyperlipidemics patient were age group between 30 to 70 years and all were literates except only one subject and they involved in sedentary life style alcohol, smoking, exercised regularly familial tendency seemed to be play on essential role in the causation of hyperlipidemia in the subjects. The mean serum Total Cholesterol, LDL-cholesterol, Tri-glyceride and HDL- cholesterol level of before or baseline treatment was compared with serum total cholesterol, LDL-cholesterol, Tri-glyceride and HDL-cholesterol level of after treatment samples of 30days of Turmeric powder.

The finding data show that turmeric powder reduced serum total cholesterol (238.00± 31.48) to (220.79± 32.31), LDL-cholesterol, (169.83± 37.72) to (145.00± 35.51), Tri-glyceride (176.83± 34.91) to (138.42± 33.93) to VLDL level (40.75± 12.11) to (20.58± 8.96) except HDL- cholesterol (38.13± 5.16) to (42.38± 4.51), of hyperlipidemic patient. This result is highly significant ($p < 0.000$) in statically. All the data are shown in Table 1.

Table 1: Effect of supplementation of turmeric powder on lipid profile 24 patients.

Lipids desirable value (mg/dl)	Before Treatment (Mean ± SD)	After Treatment (Mean ± SD) (30 days)
Total cholesterol 150-250	238.00± 31.48	220.79± 32.31
Tryglycerides 40-140	176.83± 34.91	138.42± 33.93
HDL cholesterol 45-65	38.13± 5.16	42.38± 4.51
LDL cholesterol 91-51	169.83± 37.72	145.00± 35.51
VLDL cholesterol 8-28	40.75± 12.11	20.58± 8.96

Similar observations were made by number of workers, demonstrated hypolipidemic effect of turmeric powder in experimental animal like rabbit, rat, etc [7, 8]. Some researchers also demonstrated the hypolipidemic effect of turmeric powder in hyperlipidemic type 2 diabetic patients [9, 10].

Conclusion

In conclusion, the present study Turomeric powder significantly reduced serum total cholesterol, triglyceride and LDL-cholesterol but serum HDL-cholesterol level elevation is significant. So, it can be suggested that Turomeric may be used for lipid lowering purposes and needs extensive comparative study with the modern lipid lowering agents.

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