GLOBAL JOURNAL OF BIO-SCIENCE AND BIOTECHNOLOGY

www.scienceandnature.org

ROLE OF VIRECHANATHERAPY (PURGATION BY HERBS) IN THE MANAGEMENT OF HYPERLIPIDEMIA: A CLINICAL TRIAL

Mohita Bohra & Uttam Kumar Sharma
Department of Panchakarma, Rishikul Campus, Uttarakhand Ayurved University, Haridwar (India), PIN – 249401

ABSTRACT
Hyperlipidemia involves abnormally elevated levels of any or all lipids and or lipoproteins in the blood.Virechana therapy is considered as a purificatory procedure, which improves the function of digestive system by the way of intensive purgation. This therapy removes the toxins and wastes from the body up to the cell level by excessive secretions of digestive juices, enzymes and bile. The study was conducted in 15 patients having hyperlipidemia with an objective to evaluate the efficacy of Virechana therapy in the management of hyperlipidemia. Patients were administered Virechana with Trivrita Awaleha and Triphala Kwatha. The mean values of serum cholesterol, serum triglycerides, LDL, VLDL and LDL/HDL ratio was reduced significantly up to 25 to 30 percent. No significant change was observed in the status of HDL. No adverse effect of therapy was noticed in this trial.

KEY WORDS : Virechana, Purification, Triphala, Trivrita, Dietary regimen.

INTRODUCTION

The advancement in technology, busy schedules, sedentary life style and changes in dietary habits have made an individual prone to various 'Life Style Disorders', hyperlipidemia being one of them. Hyperlipidemia or hyperlipoproteinemia involves abnormally elevated levels of any or all lipids and,or lipoproteins in the blood. It is the most common form of dyslipidemia (which includes any abnormal lipid levels). It is one of the major health issues in the present scenario. Hyperlipidemia is relatively silent as far as for the patient to notice on his or her own because of the lack of visible symptoms and thus is known to be a silent killer. Hyperlipidemia is not a single disease but a range of disorders with a variety of genetic and environmental factors as well as life style disorders. It can be caused or modified by a wide range of other disorders. The NCEP (National Cholesterol Education Program) guidelines of United States recommends cholesterol level exceeding 240 mg% as a high risk factor because of its ability to get deposited on the vessel wall to form coronary artery plaques leading to atherosclerosis, I.H.D. M.I. and cerebrovascular diseases, all of which may lead a healthy human on to the lap of death. It causes narrowing and blockage of the arteries and produces mainly heart disease while other diseases include CVD (Cerebrovascular Disease), renal diseases, liver diseases, peripheral vascular diseases, etc. Overall, raised cholesterol is estimated to cause 2.6 million deaths and 29.7 million disability adjusted life years (DALYS) per year. Thus, it works as a silent killer, the symptoms being not so obvious but the complications really serious.

HYPERLIPDEMIA

Hyperlipidemia, hyperlipoproteinemia, involves abnormally elevated levels of any or all lipids and or lipoproteins in the blood. Hyperlipidemia is divided into:

1. Primary (Familial) : Primary hyperlipidemia is usually due to genetic causes (such as a mutation in a receptor protein)
2. Secondary (Acquired): Secondary hyperlipidemia arises due to other underlying causes that leads to alteration in plasma lipoprotein metabolism such as: diabetes.

Hyperlipidemia usually has no noticeable symptoms and tends to be discovered during routine examination or evaluation for atherosclerotic cardiovascular disease.

1. Xanthoma	2. Xanthelasma of eyelid	3. Chest pain
4. Abdominal pain	5. Enlarged spleen	6. Enlarged liver
7. High cholesterol or triglyceride levels	8. Heart attack	9. Higher rate of obesity and glucose intolerance
10. Pimple like lesions across body	11. Atheromatous plaques in the arteries	12. Arcussenilis

The symptoms of disease are not very obvious but the disease may be associated with some serious complications i.e., atherosclerosis, retinal vein occlusion, acute pancreatitis, steatosis, organomegaly (fatty liver and spleen). Among these the most serious complication develops due to atherosclerosis which may result in life

threatening conditions like coma, cardiovascular arrest, paralytic attack. The object of study was to evaluate the efficacy of Virechana therapy in the management of hyperlipidemia.

MATERIALS & METHODS

Total 15 Patients having hyperlipidemia were selected from O.P.D / I.P.D of Dept. of Panchakarma, Rishikul Campus Uttrakhand Ayurved University, Haridwar for present trial.

Inclusion Criteria –

- S.Cholesterol - > 180
- S.Triglyceride - > 150 mg/dl
- S. LDL - > 100 mg/dl
- S.VLDL - > 41 mg/dl
- Patients between the age of 20 and 60 years
- Patients fit for Virechana therapy

Exclusion Criteria –

- Patients having serious cardiac problems as- Myocardial Infarction, malignant hypertension, cardiac failure.
- Patients having major illness like- IDDM and chronic uncontrolled DM II.
- Patients having any serious renal disorder.
- Patients having untreated Thyroid Disorders.
- Drug induced Hyperlipidemia e.g. - Glucocorticoid induced.
- Pregnant and lactating females.

Follow Up: 30 days

Study Duration: 60 days

Biochemical Tests-

- Complete Lipid Profile:
  - S.Cholesterol
  - S.Triglyceride
  - S.HDL
  - S. LDL
  - S.VLDL
- Body Weight
- BMI

Other Investigations:

- Hb%
- T.L.C
- D.L.C
- E.S.R
- Blood.Sugar – Fasting and Post prandial
- Thyroid Function Test (If required)
- Electrocardiogram (If required)

These investigations were carried out before and after completion of therapy and after follow-up.

STUDY METHODOLOGY

For the study open randomized controlled clinical trial was taken. The study protocol was reviewed and approved by an institutional review board at the college level and an ethical clearance was obtained from the institutional ethical committee. Written informed consents were taken from patients before commencement of the study. The dates for visits and schedule for follow up were issued to the patients.

Total treatment schedule contained two spells of Virechana. A gap of minimum 15 days was maintained between two spells of virechana therapy.

The whole procedure was divided in three parts-

Pre-operative procedure (Snehana &Swedana)

To improve the appetite and the digestive system Trikatu Churna was given in a dose of 3 gm. twice daily with luke warm water for 3 days. After this cow ghee was given for 5 days starting with a dose of 50 ml and 25 ml was increased per day. This was followed by total body oil massage and steam for 3 days.

Main procedure (Virechana procedure)

Virechana was carried out using Trivritta Avaleha (dose: 60-100 gm) along with Triphala Kwath (dose: 100 ml) given empty stomach in morning.

Post-operative procedure (specific diet regimen)

Specific dietary regimen (Samsarjana Krama)was followed for 3 to7 days.

CRITERIA OF ASSESSMENT

Only objective parameters are employed for the assessment of the impact of treatment procedure in the respective group.

TABLE 1: Range of serum cholesterol for diagnostic purpose

Range	
<180	Desirable
180-199 mg/dl	Near optimal (5.17 mmol/L)
200-239 mg/dl	Borderline High (5.17-6.18 mmol/L)
>240 mg/dl	High (6.21 mmol/L)

TABLE 2: Range of serum triglyceride for diagnostic purpose

<150 mg/dl	Desirable (1.69 mmol/L)
150-199 mg/dl	Borderline (1.69-2.25 mmol/L)
200-499 mg/dl	High (2.25-5.63 mmol/L)
>500 mg/dl	Very High (5.65 mmol/L)

TABLE 3: Range of LDL for diagnostic purpose

100-129 mg/dl	Near Optimal
130-159 mg/dl	Borderline
160-189 mg/dl	High

TABLE 4: Range of VLDL for diagnostic purpose

<40 mg/dl	Desirable
40-60 mg/dl	High
>60 mg/dl	Very high

TABLE 5: Range of HDL for diagnostic purpose

>60 mg/dl	Excellent
<40 mg/dl	Lower than Desired

OBSERVATION

Total 15 patients were registered for the study, out of which one was drop out so, 14 patients followed the complete treatment procedure. The findings before and after the therapy were as follows -

TABLE 6: Effect of Virechana Therapy on serum lipid profile

Parameter	Mean		X	%	SD	SE	't'	P
(n=14)	BT	AT						Value
S.cholesterol	248.94±44.59	184.13±34.42	64.81	26.03	46.19	12.38	5.25	<0.001
S.triglyceride	218.89±63.22	155.62±63.17	63.26	28.9	56.19	15.02	4.21	<0.001
S. LDL	164.06±39.25	114.26±32.04	49.79	30.34	51.02	13.63	3.65	<0.01
S. VLDL	43.77±12.64	31.12±12.63	12.65	28.9	11.24	3	4.21	<0.001
LDL:HDL	4.01±1.01	3.00±0.85	1.01	25.18	1.34	0.35	2.81	<0.05
Cholesterol: HDL	6.09±1.19	4.81±0.91	1.279	21	1.365	0.3648	3.506	<0.01

The mean value of Serum cholesterol was 248.94 with a standard deviation (SD) of 44.59. After treatment it reduced to 184.13 with a SD of 34.42. The change obtained was 64.81(26.03%), which is statistically highly significant. The mean value of Serum triglyceride got reduced by 63.26(28.9%) with highly significant p value. The mean value of S.LDL reduced by 49.79(30.34%) with very significant p value. The mean value of S.VLDL reduced from 43.77 to 31.12 (28.9%) with extremely significant p value. The mean value of LDL:HDL reduced by 1.01(25.18%) with significant p value. The mean of total cholesterol: HDL reduced by 1.27 (21%) with very significant p value.

Table 7: Effect of Virechana therapy on associated criteria

Parameter	Mean		X	%	SD	SE	't'	p value
Gr. A	BT	AT						
HDL	41.1±3.07	38.74±5.17	-2.36	5.74	5.91	1.58	1.49	>0.05
Body Wt.	79.78±17.89	73.57±17.35	6.21	7.78	1.25	0.33	18.58	<0.001
BMI	30.07±5.84	27.72±5.63	2.34	7.78	0.49	0.13	17.84	<0.001

After Virechana therapy, fall of 2.36(5.74%) was observed in HDL level which was not statistically significant. Mean body weight reduced from 79.78 kg to 73.57 kg. The mean change obtained was 6.21 (7.78%). BMI reduced from 30.27 to 27.72 with showing significant p value.

DISCUSSION

Taking the medicines up to cellular level is important for breaking the pathogenesis of the disease and this task is done by Ghee, as cell membrane is made up of phospholipids which only provide passage to lipids and lipid soluble substances. Its bioavailability (drug carrying capacity) is much more than other *fats*. It acts as a good solvent for many metabolic waste products. The purpose of administration of large amount of Ghee before the virechana procedure is to avoid it from undergoing digestion and remain unassimilated or free flowing, so that it may dissolve waste products and toxins in itself. After proper Snehana (oleation) all the cells of body become completely saturated with fats. Then this fat comes out of cell to extra cellular fluid along with toxins by osmosis. Thus, fat and liquefied toxins brought from tissues, the level of fatty acids increases in the blood resulting in high plasma volume. To maintain the equilibrium of normal plasma level the extra amount of liquid reaches the alimentary canal through diffusion and osmosis for excretion.

After proper oleation the exposure of steam through sudation increases the temperature which melts the fatty acid chains of phospholipid bilayer present in oil and thus brings more movement. This increases the permeability of cell membrane and facilitates absorption and excretion. When the wastes and toxins reach the alimentary canal, they are eliminated forcefully by the action of purgative drugs in the form of Virechana therapy.

Virechana reduces the level of lipids in the body in two ways-

1. By Reducing the synthesis of excess lipids -

It clears microcirculatory channels, so that circulation of blood and metabolites improves. In turn, the function of liver improves. The process of Virechanacorrects process of absorption in the gut. It relieves the extra load or burden of metabolism on liver thus reducing the excess production of lipids by the liver.

2. By Increasing the excretion of excessively produced lipids -

Virechana as purgation causes excessive excretion of digestive enzymes, digestive juices which collectively

called Pitta in Ayurveda. The duodenum is the place where bile duct and pancreatic ducts open and is responsible for carrying out major digestive processes. The major pathway of excretion of excess cholesterol from the body is usually by conversion to bile acids excreted in faeces as bile salts and Virechana increases this excretion. The presence of fatty acids in duodenum is a stimulus for secretion of cholecystokinin hormone which is responsible for contraction of gall bladder and expulsion of bile. Here its stimulation is caused by the fatty acids of the Ghee taken prior to virechana therapy. Cholecystokinin thus released, stimulates the gall bladder to contract and release the stored bile into the intestine. This bile is then excreted along with the stool by the irritant action of the purgative drugs. This cycle commences from the first day of Snehapana (oral intake of fat) till the completion of the therapy, i.e..Virechana. In researches, it is found when faecal bile acid excretion is increased and gall bladder volume is reduced, the reduction in serum cholesterol and LDL is observed.[i]An impaired ability to excrete cholesterol may be an additional risk factor for the development of coronary artery disease (COD). The excretion of large amounts of bile protects against atherosclerosis, while diminished excretion may lead to CAD. The patients of CAD have significantly decreased bile acid excretion levels than non CAD patients. The whole-body cholesterol metabolism is dependent on numerous factors, including dietary fat, fractional absorption of dietary cholesterol, tissue stores of cholesterol, endogenous cholesterol synthesis and faecal bile excretion. It is reasonable to speculate that a reduced ability to convert cholesterol to bile acids would lead to body cholesterol overload, with the subsequent development of atherosclerosis. So, Virechana procedure by increasing bile acid excretion reduces the amount of lipids present in blood. Thus the whole Virechana procedure breaks the pathology by two ways – first by correction of deranged lipid metabolism and secondly by increasing the excretion of lipids through bile salts thus reducing the plasma overload.

CONCLUSION

Virechana therapy by correcting the vitiated state of the whole digestion process and controls mal-production of lipids, and by increasing the excretion of bile (Pitta) increases excretion of the excess formed lipids along with bile. Hence, proves to be an effective measure to control hyperlipidaemia. This study proves a real breakthrough in the coming times for the safe and persistent treatment of hyperlipidaemia contrary to the standard treatment which is costly and comprises adverse effects.

REFERENCES

1. Cupurso A et.al.Increased bile acid excretion and reduction of serum cholesterol after Creno therapy with salt rich mineral water.Aging (Milano). 1999 august; 11 (4):273-6 PMID -10605616 Pub Med1Dorland's Medical Dictionary for Health Consumers.2007 by Saunders, an imprint of Elsevier, The American Heritage Medical Dictionary.2007, 2004 by Houghton Mifflin Company.

2. The World Health Report, 2002.Reducing risks, promoting healthy life, Executive summary.Technical report series.WHO Publications, Geneva, World Health Organisation, 2002.

3. Global Health Observatory (GHO) data.World Health Organization.

4.Chait A, Brunzell JD (June 1990). "Acquired hyperlipidemia (secondary dyslipoproteinemias)". Endocrinol.Metab.Clin. North Am. 19 (2): 259–78.PMID 2192873

5. KavirajDr.AmbikaDuttaShastri, Hindi Commentary on Ayurved-Tatva-Sandeepika, Sushruta Samhita by AcharyaSushruta. Sutra Sthan, Chapter 15, Verse 5. Chaukhamba Sanskrit Sansthan, Varanasi. Reprinted 2014.P.N. 74.

6. Cupurso A et.al.Increased bile acid excretion and reduction of serum cholesterol after Creno therapy with salt rich mineral water.Aging (Milano). 1999 august; 11 (4):273-6 PMID -10605616 Pub Med

7. Gideon Charach. The association of bile acid excretion and atherosclerotic coronary artery disease. Therap Adv Gastroenterol.2011Mar;4(2):95–
101.doi: 10.1177/1756283X10388682.
PMCID: PMC3105622

8.Charak Samhita – Shastri K, Chaturvedi G, Chaukhambha Bharati Academy, Varanasi – 2005

9. Susruta Samhita – Ambikadatta Shastri, Ayurved Tattva Sandipika Tika, Chaukhambha Publications, Delhi -2005.