A standard controlled clinical study on *Virechana Karma* and *Lekhana Basti* in the management of dyslipidemia (*Medoroga*)

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Abstract

Background: Dyslipidemia, a major risk factor of coronary heart disease, is the leading single cause of death in the world. Currently available hypolipidemic agents have been associated with a large number of side effects. The radical Ayurveda *Samshodhana Chikitsa* as a treatment protocol can provide better effect. Therefore, the present study was designed to evaluate the effect of *Virechana Karma* and *Lekhana Basti* in dyslipidemia. **Objectives:** To evaluate the effect of *Virechana Karma* and *Lekhana Basti* in the management of dyslipidemia (*Medoroga*). **Materials and Methods:** Ninety patients of either sex in the age group of 20–60 years, fulfilling the study criteria were included in the study. The patients were randomly divided into three groups (thirty patients each). *Virechana Karma* was administered to patients in group A, *Lekhana Basti* was administered in group B and tablet Atorvastatin in group C. The effect of treatment was assessed by analyzing the complete lipid profile after completion of treatment and after the follow up in comparison to base line score. **Results:** All the three groups showed statistically highly significant result in the lipid profile after the treatment and after the follow up. **Conclusion:** *Virechana Karma* is effective in reducing triglycerides level, where as *Lekhana Basti* is effective in reducing the cholesterol level in particular.

Keywords: Atorvastatin, dyslipidemia, *Lekhana Basti*, lipid profile, *Virechana Karma*

Introduction

The twenty-first century is an era of tremendous development and innovation in all aspects of life in general and in the field of technology in particular, which has made living much more comfortable on one side but on the other side, gifted many lifestyle related diseases. One of such gift is dyslipidemia which is a potential signal for unrecognized comorbidities such as obesity, metabolic syndrome, diabetes mellitus, hypertension, cardiovascular disease etc.[1] It may be manifested by elevation of the total cholesterol, low-density lipoprotein cholesterol (LDL) and triglyceride (TGL) concentrations and a decrease in the good high-density lipoprotein (HDL) cholesterol concentration in the blood.

The prevalence of dyslipidemia in India is not exactly known as it usually appears as subclinical case without symptoms. For every 1% increase in cholesterol level, there is 1–2% increase in the incidence of coronary heart disease. According to the National Commission on Macroeconomics and Health, there would be around 62 million patients with coronary artery disease by 2015 in India and of these, 23 million would be patients younger than 40 years of age.[2]

Statins are the first choice in the treatment of dyslipidemia.[3] The data from the US National Health and Nutrition Examination Survey conducted from 1999 to 2000 reported that 25% of adults either had total cholesterol >239.4 mg/dl or were taking a lipid-lowering medication. Lifestyle modifications should always be a part of the management of dyslipidemia. However, the need for long-term, lifelong therapy is associated with several adverse effects such as myopathy, increased risk of renal failure, hypothyroidism and memory loss in 15%-20% of the patients on treatment with statins.

There are scattered references available in Ayurveda which can be correlated to dyslipidemia. Lipids can be easily correlated to that of *Medo Dhatu*. Abnormal composition of *Medo Dhatu* is considered as *Medo Dosha* and subsequently as *Medoroga*.

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Medoroga being *Bahu Dosha* (excessive vitiated) condition, *Samshodhana Chikitsa* (bio-purification) is preferred as treatment modality. Among these treatments, *Virechana Karma* (therapeutic purgation) is best for the elimination of excessively vitiated *Pitta Dosha*, to correct *Agni* (factor responsible for digestion and absorption) and *Basti Karma* (therapeutic enema) is the best treatment for correction of *Vata Dosha*, which are the basic factors involved in the pathogenesis of *Medoroga.*[4]

Considering the incidence, prevalence and impact of dyslipidemia on comorbid pathology and limitations in its treatment, there is a need to provide safe and effective therapeutic measures. Thus, with this thought, a standard controlled comparative clinical study was carried out to evaluate the efficacy of *Virechana Karma* and *Lekhana Basti* in comparison with statin group, i.e., Tablet, Atorvastatin.

Materials and methods

The present study was a randomized, standard controlled, comparative clinical trial carried out over a period of 3 months with an objective to compare the effect of *Virechana Karma* and *Lekhana Basti* in comparison with tablet atorvastatin in the management of dyslipidemia (*Medoroga*). The study protocol was approved by the Ethical Committee of the National Institute of Ayurveda, Jaipur (AK/Ph.D.123/16-03-2012). After obtaining written informed consent, ninety patients of either sex in the age group of 20–60 years fulfilling the following study criteria were included in the study.

Inclusion criteria
Abnormal serum lipid levels like serum cholesterol (201 mg/dl or more), serum TGLs (161 mg/dl or more), serum HDL (below 40 mg/dl), serum LDL (131 mg/dl or more), and serum VLDL (41 mg/dl or more) were included in the study.

Exclusion criteria
Patients with a history or evidence of systemic disorders like cardiac, hepatic, renal, and neurological diseases and who were not fit for *Virechana Karma* and *Lekhana Basti* were excluded.

A detailed medical history, clinical examination, anthropometric measurements, and baseline laboratory investigations such as Hb %, TLC, DLC, ESR, Urine analysis were also carried out in addition to serum lipid profile.

Grouping
Ninety patients were divided into three groups (thirty patients each) by random sampling method. *Virechana Karma* was administered to patients in group A, *Lekhana Basti* in group B and tablet Atorvastatin in group C respectively. The effect of treatment was assessed by analyzing the complete lipid profile after completion of treatment and follow-up in comparison to baseline status.

Group A (*Virechana Karma* procedure)
Panchakola Churna[5] was administered to patient thrice a day in the dose of 2 grams orally after food along with *Shukhoshna Jala* (lukewarm water) for a period of 3–7 days until *Nirama Lakshana* (features of good appetite) was obtained. There after *Triphala Taila*[6] was administered between 6:30 am and 7 am with lukewarm water as *Anupaana* (adjuvant) in an increasing dose, starting with 30 ml on the first day, depending upon *Agnideepti* (increased power of digestion). Second day onwards the dose was increased accordingly for a period of 3–7 days till *Samyak Snigdha Lakshanas* (proper features of internal oleation) were observed.

Sarvanga Abhyanga (whole body massage) with *Dashamoola Taila* for 25 minutes followed by *Mridu Vashpa Swedana* (mild sudation) for 10 minutes was carried out for 4 days including the day of *Virechana Karma*. During these three-day, a light diet including rice gruel, green gram soup, grapes, sweet lemon, orange and pomegranate was advised.

Preparation of *Virechana Yoga* (formulation for purgation)
Forty grams of *Triphala Kwatha Churna* (powder of *Terminalia chebula*, *Terminalia bellerica* and *Emblica officinalis*) was boiled in 160 ml of water and was reduced to 80 ml to which 15 g of *Trivritha Churna* (powder of *Operculina turpethum*) and 10 g of *Katuki Churna* (powder of *Picchrozea kurroa*) was mixed. The above mixture was administered followed by 1–2 tablets of *Icchabhedi Rasa* as *Virechana Yoga*.

Administration of *Virechana Yoga*
After *Sarvanga Abhyanga* and *Mridu Svedana,* patients were examined for the vitals such as pulse, blood pressure etc., and then, the above mentioned *Virechana Yoga* was administered in between 9.30 am and 10 am with warm water. Later as per the need, 1–2 *Icchabhedi Rasa* tablet (125 mg each) were given. Patients were instructed to take warm water repeatedly, not to sleep in the afternoon, not to sit under fan or expose to strong winds or sunlight, have a rest and to attend the urge of defecation.

Observations of the patient
The observations like the time of initiation of *Virechana Vega* (urge of defecation), total number of *Virechana Vega* (bouts of purgation), time of completion, nature of *Vega*, *Kshudha Pravritti* (hunger), examination of vitals, *Laingiki Lakshana* (features of the proper *Virechana*)*, Antiki Lakshana* (features of proper completion of the procedure), or *Vyapad* (complications) if any were noted.

After the completion of *Virechana*, all the patients were advised for special diet which consists of liquid rice gruel, thick rice gruel, green gram soup, green gram soup with spices and meat soup (only in nonvegetarian patients) administered each for 1, 2 or 3 *Annakala* (meals) where in a day consists of 2 *Annakala*. In this way, these four diets were advised for 3, 5 and 7 days depending upon *Avara* (average)*, Madhyama* (medium) and *Pravara Shuddhi* (best purification) respectively.[7] Thereafter,

follow up of the patients was done once in fortnight up to 90 days.

Group B (Lekhana Basti procedure)

In this group, *Lekhana Basti* was administered to the patients of Dyslipidemia as per *Kala Basti* schedule, but slightly modified as depicted in Table 1.

For the purpose of *Basti* administration, the patient was first subjected to *Sarvanga Abhyanga* with *Dashamoola Taila* followed by *Vashpa Svedana*. Patient was asked to take rice with green gram *Dal* in small quantity than regular consumption, attend natural urges and walk a few steps before reaching the *Basti* room. On the day of *Niruha Basti* (medicated decoction enema), patient was asked to remain empty stomach before the administration of *Basti*.

After recording the vitals, patient was advised to lie comfortably in left lateral position on *Basti* table with left leg straight and the right leg flexed at knee and hip joints, head resting on the left hand with the right hand resting on the right leg.

Preparation of Basti Dravya

60 ml of *Triphala Taila* was made lukewarm by keeping it in a hot water bath. Then *Shatapushpa Churna* and *Saindhava Lavana* (each 1 gram) was added and mixed till a homogeneous mixture was obtained. *Basti Dravya* was made lukewarm again and administered with enema syringe fitted with rubber catheter (No. 08) with the patient in appropriate position.

Preparation of Niruha Basti

Makshika (honey) 60 ml, *Saindhava Lavana* 5 g, *Triphala Taila* 90 ml, *Yashtimadhu Kalka* 20 g, and *Triphala Kwatha* 240 ml, were added in a sequential manner and stirred well to get a homogeneous mixture. *Gomutra* 50 ml, *Yavakshara* and *Ooshakadi Gana Dravya* (*Hingu*, *Tutta*, *Kaseesa* and *Shilajatu* - 2 gram each) were added, and this mixture was administered through *Basti Putaka*.[6]

Follow-up

Follow-up of the patients was done once in fortnight up to 90 days.

Group C (Standard controlled drug)

Tablet atorvastatin 10 mg once daily was given orally at bed time with warm water for 90 days.

All the patients were advised to avoid oily, bakery, fast food and day sleep during the treatment course. The effect of treatment was assessed on 91th day. As per the ethical committee advice, the tablet was continued till the completion of study duration in Group C.

All the medicines were procured from National Institute of Ayurveda Pharmacy, Jaipur except *Icchabhedi Rasa*, *Yavakshara*, *Ooshakadi Gana Dravya* and Tablet Atorvastatin. *Icchabhedi Rasa* was purchased from *Baidyanath* Pharmacy Pvt. Ltd. (Batch No. 2-1), *Yavakshara* from PAB Pharmaceuticals (Batch No. 15) and *Ooshakadi Gana Dravya* from *Dhootapapeshwara* Company (Batch No. P130300051) was utilized. Atorvastatin tablets were procured from dispensing section of SMS Medical College and Hospital, Jaipur.

Assessment criteria

Lipid profile

Complete lipid profile including serum cholesterol, serum triglycerides, serum HDL, serum LDL and serum VLDL were assessed before starting the treatment, after completion of treatment and after follow-up and were analyzed in terms of percentage relief and statistical evaluations.

Statistical analysis

The statistical analysis was done using students paired "t" test. ANOVA was applied for the analyzing the parameters of lipid profile.

Statistical software

The statistical software namely, SAS 9.2, SPSS 15.0, Stata 10.1, MedCalc 9.0.1, Systat 12.0 and Rnvironment version 2.11.1 manufactured by IBM Corporation released in Chicago were used for the analysis of the data and Microsoft Word and Excel have been used to generate graphs, tables etc.

Observation and results

The results were expressed in percentages and mean ± standard deviation. ANOVA was used to find the significance of treatment on the lipid profile [Tables 2-6].

By analyzing the data, it was found that, out of 90 patients, 63.33% patients were male, 83.33% patients were from the age group of 25-50 years, 53.33% patients were Hindus, 76.66% patients were married and 36.66% belongs to higher middle class. It was also observed that 65.55% patients were taking vegetarian diet, 56.66% patients had the habit of *Vishamashana*, 68.88% of patients were regularly doing consumption of curd in excess, 77.77% were using mustard oil in the diet, 60% of the patients had *Vishamagni*, 53.33% were of *Vata-Kapha Prakriti* (body constitution), 53% patients were of *Krura Koshtha* (bowel habits) and 66.66% were taking *Madhura Rasa Pradhana Ahara*. 67.77% patients gave the history of day sleep, 68.88% of patients had a history of worry and 55.55% patients had sedentary lifestyle. In the study, out

Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Basti	A	N	N	N	A	N	N	N	A	N	N	N	A	N	N	A

Table 1: Schedule of *Kala Basti*

N: *Niruha Basti*, A: *Anuvasana Basti*

Table 2: Comparison of effect of therapies on serum cholesterol among three groups

Serum cholesterol in mg/dl	BT	AT	AF	Pair wise significance		
				BT-AT	BT-AF	AT-AF
Group A	240.84±32.73	199.87±27.21	204.33±25.92	<0.001**	<0.001**	0.063+
Group B	267.57±21.15	167.17±22.10	172.33±21.83	<0.001**	<0.001**	<0.001**
Group C	303.33±26.31	-	223.33±34.77	-	<0.001**	-
P	<0.001**	<0.001**	<0.001**	-	-	-
Group A-Group B	0.001**	-	<0.001**	-	-	-
Group A-Group C	<0.001**	-	0.027*	-	-	-
Group B-Group C	<0.001**	-	<0.001**	-	-	-

+Suggestive significance (0.05< *P* <0.10). *Moderately significant (0.01< *P* ≤0.05). **Strongly significant (*P*≤0.01), BT: Before treatment, AT: After treatment, AF: After follow-up. *n*=90

Table 3: Comparison of effect of therapies on Serum Triglycerides among three groups

Serum TGL in mg/dl	BT	AT	AF	Pair wise significance		
				BT-AT	BT-AF	AT-AF
Group A	256.89±82.27	152.78±15.05	156.21±58.33	<0.001**	<0.001**	0.747
Group B	218.83±34.25	166.77±22.00	172.23±21.30	<0.001**	<0.001**	<0.001**
Group C	232.00±23.98	-	159.67±23.27	-	<0.001**	-
P	0.023*	0.006**	0.239	-	-	-
Group A-Group B	0.019*	-	0.242	-	-	-
Group A-Group C	0.173	-	0.935	-	-	-
Group B-Group C	0.606	-	0.415	-	-	-

TGL: Triglycerides. *Moderately significant (0.01< *P* ≤0.05). **Strongly significant (*P*≤0.01), BT: Before treatment, AT: After treatment, AF: After follow-up. *n*=90

Table 4: Comparison of effect of therapies on Serum HDL among three groups

Serum HDL in mg/dl	BT	AT	AF	Pair wise significance		
				BT-AT	BT-AF	AT-AF
Group A	51.71±7.43	56.87±6.50	57.83±6.34	<0.001**	<0.001**	0.137
Group B	56.43±8.26	56.50±5.06	58.80±5.87	0.943	0.020*	<0.001**
Group C	50.37±6.24	-	49.70±5.86	-	0.094+	-
P	0.005**	0.808	<0.001**	-	-	-
Group A-Group B	0.039*	-	0.809	-	-	-
Group A-Group C	0.761	-	<0.001**	-	-	-
Group B-Group C	0.005**	-	<0.001**	-	-	-

HDL: High density lipo protein, BT: Before Treatment, AT: After Treatment, AF: After follow up. *Moderately significant (0.01< *P* ≤0.05). **Strongly significant (*P*≤0.01)

Table 5: Comparison of effect of therapies on Serum LDL among three groups

Serum LDL in mg/dl	BT	AT	AF	Pair wise significance		
				BT-AT	BT-AF	AT-AF
Group A	131.07±33.27	113.28±29.90	113.87±31.36	0.018*	0.011*	0.864
Group B	167.70±14.65	77.27±19.24	78.62±20.36	<0.001**	<0.001**	0.347
Group C	206.57±24.71	-	142.03±32.74	-	<0.001**	-
P	<0.001**	<0.001**	<0.001**	-	-	-
Group A-Group B	<0.001**	-	<0.001**	-	-	-
Group A-Group C	<0.001**	-	0.001**	-	-	-
Group B-Group C	<0.001**	-	<0.001**	-	-	-

LDL: Low density lipo protein, BT: Before Treatment, AT:After Treatment, AF: After follow up. *Moderately significant (0.01< *P* ≤0.05). **Strongly significant (*P*≤0.01)

Table 6: Comparison of effect of therapies on Serum VLDL among three groups

Serum VLDL in mg/dl	BT	AT	AF	Pair wise significance		
				BT-AT	BT-AF	AT-AF
Group A	51.39±16.53	30.46±3.07	31.01±11.75	<0.001**	<0.001**	0.797
Group B	43.79±6.87	33.35±4.40	34.42±4.27	<0.001**	<0.001**	<0.001**
Group C	46.40±4.80	-	31.93±4.65	-	<0.001**	-
P	0.024*	0.004**	0.213	-	-	-
Group A-Group B	0.020*	-	0.205	-	-	-
Group A-Group C	0.173	-	0.887	-	-	-
Group B-Group C	0.614	-	0.427	-	-	-

VLDL: Very low density lipo protein, BT: Before Treatment, AT: After Treatment, AF: After follow up. *Moderately significant ($0.01< P ≤0.05$) .**Strongly significant ($P≤0.01$)

of 57 females, 42 (73.69%) had attained menopause, and only 6.66% of patients had family history of Dyslipidemia. 41.11% of patients were having body weight between 51 and 60 kg.

The study revealed that 67.77% patients were having the serum cholesterol level above 240 mg/dl, 87.77% patients had serum triglyceride level ranging between 200 and 499 mg/dl, 87.77% patients were having the serum HDL level in the range of 40 and 60 mg/dl, 32.22% of patients were having the serum LDL level above 190 mg/dl, and 78.88% patients were having the serum VLDL level in the range of 41 and 60 mg/dl.

The Assesment of the result has shown in Tables 2-6.

Discussion

Dyslipidemia can be considered under the broad umbrella of *Sthaulya* (obesity) mentioned in the *Brihatrayi*. *Atisthaulya* is first mentioned by *Acharya Charaka* as one of the *Kaphaja Nanatmaja Vikara* in *Maharoga Adhyaya* which later has been elaborated upon in the subsequent *Ashtau Ninditiya Adhyaya*.[8] On further contemplation, it is evident that *Atisthaulya* is a physiology predominant disorder which eventually gets converted into a pathological state. The progression from a physiology to pathology is so prompt that it cannot be pointed out distinctly.

A review of the *Laghutrayi* bears certain references to dyslipidemia. *Adhamalla,* commentator of *Sharangdhara Samhita* has differentiated between the two types of *Medo Roga* namely *Sthaulya* and *Medo Dosha*.[9]

The better result in reducing the cholesterol level obtained by *Virechana Karma* can be explained in two ways: *Virechana Karma* being the best treatment for *Pitta Dosha* through which large amount of bile is excreted which indirectly helps in the excretion of cholesterol. Apart from this, the site of action is on *Adho Amashaya* (small intestine) from where the cholesterol is reabsorbed. Thus *Virechana Karma* helps to convert the cholesterol in the non-absorbable form so that it may not be reabsorbed.

On the other side, *Yakrit* (liver) being the main organ of *Pitta Sthana*, *Virechana Karma* may be having a direct effect on the functioning of liver. Once the functioning of liver is corrected, the synthesis of cholesterol may be checked and excretion of cholesterol may be increased by stimulating the bile production and secretion.

In *Virechana Karma,* injurious substances are brought from the peripheral tissues to the intestine by adopting proper *Snehana* (oleation) and *Svedana* (sudation). This means the cholesterol present at the plasma and tissue level might have been brought to the intestine for the excretion by therapeutic purgation.

Comparative better effect on triglycerides (TGL) by *Virechana Karma* could be attributed by the following reasons. The main action of *Virechana Karma* is on *Pitta Dosha*, indirectly on *Agni* which plays an important role in the digestion and metabolism through which the synthesis of triglycerides might have been regulated. It has also action on *Koshtha* (small intestine) from where the raw materials for the synthesis of TGL will be absorbed. Hence, regulating the functions of intestine may regulate the uptake and absorption of raw materials for TGL.

The liver plays a major role in the synthesis and storage of TGL. *Virechana Karma* is the major treatment for *Pitta Dosha* and *Pitta Sthana*. Liver being one of the major *Pitta Sthana, Virechana Karma* significantly improve the function of liver which indirectly regulates the synthesis of TGL.

The improvement in the HDL level had occurred as *Virechana Karma* mainly works on *Agni, Pitta Sthana* (liver) and *Koshtha,* i.e., intestine which helped for the proper formation of *Dhatu,* i.e., tissues in general and quality of the tissues in particular. Further, in LDL and VLDL level also much better result was observed. As *Virechana* improves *Agni,* it regulates the intake of raw material for the production of lipids. It also improves the functioning of liver there by regulates the endogenous production of VLDL.

In the present study, a modified *Kala Basti* schedule was adopted, in order to have maximum *Lekhana* effect, more number of *Niruha Basti* and less number of *Anuvasana Basti* were administered as per the *Kala Basti* schedule.

The effect of *Lekhana Basti* on serum cholesterol can be studied under two headings:

Action at the level of liver

The chief drugs of *Lekhana Basti* like honey, *Triphala, Gomutra, Yavakshara* and *Ooshakadi Gana Dravya* are having *Kaphahara, Medohara* activity which might have been absorbed by the superior haemorrhoidal veins and evacuated

directly to the liver, there by correcting liver metabolism. This might have reduced the synthesis of cholesterol by increasing its excretion. The two-third portion directly enters systemic circulation through inferior and middle haemorrhoidal veins resulting in significant availability of drugs by bypassing the metabolism which may be the cause in reduction in serum level.

Correcting *Vata Dosha*

The corner stone in the treatment of reducing cholesterol is inhibition of acetyl Co-A reductase which may be considered as a part of *Vata Dosha*. *Basti Karma* regulates the production and function of *Vata Dosha* also.

The effect obtained by *Lekhana Basti* in serum triglyceride may be due to the following reasons. The drugs used in *Basti Karma* are mainly *Medohara* (hypolipidemic) and *Lekhana* in nature; hence they might have reduced the level of TGL. Apart from this, the basic causative factor for dyslipidemia (*Medoroga*) is the abnormal movement of *Vata Dosha* which in turn increases the appetite there by resulting in increased calorie intake. Hence to reduce the calorie intake the main treatment could be regulating the movement of *Vata Dosha* which was achieved by successful administration of *Basti*.

The improvement in the serum HDL level after the *Basti* was observed. As *Lekhana Basti* drugs are having *Medohara* action, it cleanses the channels of transportation there by eliminates the accumulated *Dosha* and *Malarupi Medo Dhatu* which may be the reason for the reduction of serum LDL and VLDL level.

Atorvastatin calcium is a synthetic lipid-lowering agent and is an inhibitor of HMG-CoA reductase, which catalyzes the conversion of HMG-CoA to mevalonate. Inhibition of HMG-CoA reductase leads to upregulation of LDL cholesterol (LDL-C) receptors in the liver, mediated by activation of sterol regulatory element binding proteins resulting in enhanced clearance of LDL from the circulation, thus playing an important role in lowering the lipid profile.

Conclusion

Dyslipidemia is the abnormal amount of lipids in the blood due to impaired lipid metabolism and can be correlated with abnormal *Medo Dhatu* (*Medo Dosha*). Primarily there is *Agni Vaishamya* and *Vata Dushti,* hence *Virechana* is best to correct *Agni* and *Basti* to correct *Vata Dosha*.

In addition, it was found that *Virechana Karma* was highly effective in reducing the triglycerides level and *Lekhana Basti* was highly effective in reducing cholesterol level in particular.

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Conflicts of interest
There are no conflicts of interest

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हिन्दी सारांश

डिस्लिपिडेमिया के प्रबंधन में विरेचन कर्म और लेखन बस्ति के प्रभाव का मूल्यांकन- एक

मानक नियंत्रित चिकित्सकीय अध्ययन

पूजा बी ए, संतोष कुमार भट्टेड

डिस्लिपिडेमिया जो कि कोरोनरी हृदय रोग का एक मुख्य हेतु है विश्व में मृत्यु का एक प्रमुख कारण है। वर्तमान में उपयोग होने वाली हायपोलिपिडेमिक औषधियाँ अनेक विपरीत प्रभावों से युक्त हैं, इसके विपरीत आयुर्वेदीय संशोधन चिकित्सा को अच्छे परिणामों के लिए प्रयोग किया जा सकता है। इसलिए प्रस्तुत अध्ययन में डिस्लिपिडेमिया में विरेचन कर्म और लेखन बस्ति के प्रभाव का मूल्यांकन किया गया है। इसमें डिस्लिपिडेमिया (मेदोरोग) के ९० रोगियों को जिनकी आयु २०-६० वर्ष के बीच थी उन्हे चुना गया तथा इन्हें तीन समूहों में (३० रोगी प्रत्येक समूहों में) विभाजित कर चिकित्सा प्रबंधन किया गया। चिकित्सा की अवधि ९० दिनों के लिए निर्धारित की गई थी, जिसमे समूह 'ए' में विरेचन कर्म, समूह 'बी' में लेखन बस्ति और समूह 'सी' में एटोरवास्टाटिन की गोली दी गयी थी। चिकित्सा की पूर्ण अवधि के पश्चात टोटल लिपिड प्रोफाइल पर सभी समूहों (ए, बी और सी) में सांख्यिकि दृष्टि से सार्थक परिणाम दिये। इससे यह निष्कर्ष निकाला गया कि सीरम ट्राइग्लिसराईड को विरेचन कर्म द्वारा तथा सीरम कॉलेस्ट्रॉल को लेखन बस्ति द्वारा नियंत्रित किया जा सकता है।