



EFFECT OF KSHARA BASTI AND VIRECHANA WITH VIDANGADI CHURNA IN MEDOROGA W.S.R. TO DYSLIPIDAEMIA- A COMPARATIVE STUDY

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ABSTRACT **Background-** Dyslipidemia is a significant health condition that is connected with co-morbidities such as coronary heart disease (CHD), cardiovascular disease (CAD), and atherosclerosis, which are the leading causes of mortality globally. It is distinguished by a rise in cholesterol, triglycerides, and LDL levels, as well as a reduction in HDL levels. Medoroga is a disease characterised by an excess of Medo Dhatu in various areas of the body, resulting in a blockage of the Strotasa. **Method-** Study was conducted for 45 days on 40 patients divided in two equal groups. Vidangadi Churna 3 gm. twice a day for 30 days was given after Virechana Karma in Group A and after Kshara Basti (in the protocol of Kala Basti) in Group B. Patients were thoroughly assessed on subjective parameters (Kshudra Shwasa, Trisha, Moha, Atinidra, Kranthana etc. along with objective parameters including anthropometric measurements, Lipid Profile and Fasting blood sugar. **Results-** Both the groups showed statistically highly significant ($P < 0.001$) improvement in subjective parameters while in objective parameters, Group A showed highly significant ($P < 0.001$) reduction in Weight, BMI, BMI prime, Waist Height ratio, Waist Hip Ratio, Waist, Mid- Thigh circumference etc. Group B produced highly significant ($P < 0.001$) reduction in Weight, Waist Height Ratio, Serum Total Cholesterol, Serum Triglycerides etc. **Conclusion-** Both the therapeutic trial measures provided almost equal results in subjective parameters. Virechana Karma with Vidangadi Churna showed better results in BMI, BMI prime, Waist-Hip Ratio, Waist, Mid-Thigh. Kshara Basti with Vidangadi Churna proved effective in Serum Total Cholesterol, Serum Triglycerides, Serum LDL.

KEYWORDS : Dyslipidemia, Kshara Basti, Lipid profile, Meda, Medoroga, Virechana Karma

Introduction –

In this era of urbanization, dyslipidaemia has emerged as one of the important lifestyle related serious health problem faced by both developed and developing nations. It has become the main cause of mortality and a major risk factor for cardiovascular disease, atherosclerotic disease and diabetes mellitus.^[1] Dyslipidaemia is a metabolic disease involving overproduction and shortage of lipoprotein or both, i.e. abnormal (increased or decreased) values of serum cholesterol, serum triglycerides, serum VLDL with decreased HDL level.^[2] Ayurveda has several references that might helpful in the correlation of *Medoroga* with dyslipidaemia. Lipids resemble with *Meda* (*Abadha Meda*). Abnormal and unequal composition of *Medo Dhatu* in body due to *Medo Dushti* is referred as *Medo Dosh* and consequently as *Medoroga*.^[3] Over the last two decades in India, the frequency of CVD has risen, accounting for 24% of all fatalities among people aged 25–69. Recent studies show that about 25 to 30% of urban and 15 to 20% of rural people suffer from dyslipidaemia. marginal high LDL, low HDL, and high triglycerides are the most prevalent dyslipidemia in India.^[4]

Statins are the primary option in the treatment of dyslipidemia as a lifetime medication. The consequences are reported to include myopathy, moderate myalgia, rhabdomyolysis, higher risk of renal failure, hypothyroidism, and loss of memory in 15%-20% of individuals.^[5] None of the research work till date has promised complete cure. *Medoroga* being a *Santarpanotha Vyadhi* therefore, *Sanshodhana Chikitsa* accompanied with *Sanshamana Chikitsa* can be a preferred treatment modality for complete cure. *Virechana Karma* is described as the finest *Santarpanotha Vikara therapy* and *Basti Karma* for *Vata Dosh*. On focussing the incidence, prevalence and influence of dyslipidemia and limitations in its treatment, an urgent need of easily available, cost effective treatment with lesser or no side effects was felt. Therefore present study was designed including *Sanshodhana* as well as *Sanshamana Chikitsa* to treat dyslipidaemia.

Objective:

To compare the effect of *Virechana Karma* and *Kshara Basti* each followed by *Vidangadi Churna* for the treatment of *Medoroga* w.s.r. to Dyslipidaemia.

MATERIALS & METHODS

Methodology- Interventional type, comparative study, carried out over a period of 45 days on forty patients (20 patients each). The plan of research study was accepted by the Ethical Committee under reference no.-IEC /ACA/EC/2019/1-26; dated 28.5.2019. The research study was registered in CTRI on 15/4/2020 with Registration No. CTRI/2020/04/024639.

Inclusion criteria:

Patients irrespective of sex between 18–60 years age group, fulfilling

the diagnostic criteria (NCEP-ATP-III), willing for trial, suitable for *Virechana* and *Basti Karma*, having Serum Cholesterol between 200 mg/dl and 400mg/dl, Serum Triglycerides not less than 150 mg/dl and above 400 mg/dl, LDL Cholesterol not below 100mg/dl and above 250 mg/dl, HDL Cholesterol between 20 mg/dl and 40 mg/dl, with strictly controlled Diabetes Mellitus (FBS \leq 120 mg/dl, PP \leq 160 mg/dl) were selected for the study.

Exclusion criteria:

Prolonged (last six months) history of any heart disease, taking medications (>6weeks) like corticosteroids, antidepressants, anticholinergic, immunosuppressant, oestrogen replacement therapy, oral contraceptives, hypolipidemic medication (Modern Drug) in past two weeks, dyslipidaemia due to drugs e.g. Glucocorticoids, Diuretics etc., poorly controlled hypertension (systolic >180 and diastolic >100 mm of Hg, malignancy, alcohol and/or drug abusers, any rectal diseases, such as haemorrhoids, cracks, not appropriate for *Virechana* and *Basti Karma*, Pregnancy, Lactating mothers, having Serum Cholesterol between above 400mg/dl, Serum Triglycerides above 400 mg/dl, LDL Cholesterol above 250 mg/dl, HDL Cholesterol below 20 mg/dl were excluded from the study.

Materials -

Grouping- *Virechana Karma* followed by *Vidangadi Churna* was administered to patients of group A and *Kshara Basti* followed by *Vidangadi Churna*^[6] was given in group B respectively.

Group A –

Procedure for *Virechana Karma*^[7] –

a) *Trikatu Churna* 2 gm. with *Anupana* of lukewarm water, twice a day orally, after food for a period of 3–7 days until *Nirama Lakshana* (good appetite) was obtained.

b) *Snehapana* in *Arohana Krama* with *Goghrita Accha Pana* in single dose in morning at 7a.m. empty stomach with lukewarm water as *Anupaana* with initial dose 25 ml. (after assessing *Agnibala*) for a period of 3–7 days till *Samyaka Snigdha Lakshanas* (*Udgara Shudhi, Laghutva, Malshudhi, Snehavirakti* etc.) were observed.

c) *Sarvanga Abhyanga* with *Tila Taila* followed by *Mridu Vashpa Swedana* was carried out for 4 days including the day of *Virechana Karma*. During these days *Laghu Ahara* was advised to patient.

d) Administration of *Virechana Yoga-* After *Sarvanga Abhyanga* and *Mridu Swedana*, After checking vitals, *Virechana Aushadha, Abhayaadi Modaka*^[8] 2-6 tab. (250 mg. each) was given empty stomach, with cold water in morning at 9 a.m. (Dose of *Abhayaadi Modaka* was decided according to patient's *Koshtha*). Patients were instructed to take cold 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.

e) Observations of the patient- Assessment of patient was done during *Pradhana Karma*, like examination of vitals, the time of initiation of *Virechana Vega*, total number of *Virechana Vega*, nature of *Vega*, *Kshudha Pravritti*, *Laingiki Shudhi* (symptoms of proper purgation like stopping of purgation on its own), *Manaki Shudhi* (2-4 *Prastha Mala*), *Aantiki Shudhi* (passing of stool with mucous in last one or two motions, feeling of lightness in the body) and any complication (*Hinayoga* or *Atiyoga*) was noted.

f) After the completion of *Virechana*, all the patients were advised for *Samsarjana Karma* in order of *Manda*, *Peya*, *Vilepi*, *Akrita Yusha*, *Krita Yusha* for 1, 2 or 3 *Annakala* (meals) where in a day consists of 2 *Annakala*, for 3/ 5 /7 days depending upon *Avara* (average), *Madhyama* (medium) and *Pravara Shuddhi* (best purification) respectively before resuming a normal diet.

g) After completion of *Virechana Karma*, *Vidangadi Churna* was given orally in dose of 3gm twice a day with Honey after breakfast and dinner for 30 days.

Group B - 20 patients were administered *Kshara Basti*^[9] mentioned by *Acharya Charaka* in description of *Kaphnashaka Basti*, for 16 days as per *Kala Basti* schedule, followed by *Vidangadi Churna* for 30 days.

Preparation of Anuvasana Basti- *Murchita Tila Taila* (9 Karsh-100 ml.)-*Saindhava Lavana* (1gm.) was added in 100 ml. lukewarm *Tila Taila* and stirred to form a smooth emulsion.

Administration of Anuvasana Basti- On scheduled day after passing of stools patient was asked to take food prior to administration of *Anuvasana Basti*. Vitals data were recorded. The patient was asked to lie comfortably on his left side on the *Basti* table, with left leg straight and right leg folded from the knee. *Basti Drava* was given using an enema syringe equipped with a catheter and advised to stay for 5 minutes.

Preparation of Niruha Basti

Makshika (honey) 30 ml, *Saindhava Lavana* 12 g.m., *Tila Taila* 70 ml, were added in *Haridra*, *Triphala*, *Musta*, *Daruharidra*, *Shyonaka Chaal Kwatha* (lukewarm) 280 ml., *Yavakshara* 12m.g. was added as *Prakshepa*, all the contents were added in a sequence and stirred well to get a homogeneous mixture. *Gomutra* 100 ml was added just before administering *Basti*.

Administration of Niruha Basti-

After *Koshtha Shudhi*, empty stomach, *Abhyanga* with *Tila Taila* followed by *Vashpa Svedana* was done on abdomen before administration of *Basti*. Same position was adopted as in *Anuvasana Basti*. Luke warm *Basti Drava* was administered using *Basti Putaka* not too slowly nor too fast, advised to wait for return of *Basti* for one *Muhurata* and pass stools when it urged. After *Niruha Basti Pratyagamana*, *Laghu Bhojana* was prescribed.

Vidangadi Churna - *Vidangadi Churna* had been selected as trial drug in both groups after *Virechana* and *Basti* respectively.

Preparation of Vidangadi Churna

Vayavidanga (Fruit), *Nagara* (Rhizome), *Yavakshara*, *Lauh Bhasma*, *Yava* (Fruit), *Amalaki* (Fruit) were taken in equal quantity and its fine powder was made. *Churna* were finally packed in air-tight packing containers.

Criteria's for assessment-

The effect of treatment was assessed on the basis of subjective parameters i.e symptoms such as *Kshudrashwasa*, *Trishna*, *Moha*, *Atinindra*, *Krathana*, *Angasada*, *Atikshudha*, *Swedadhikya*, *Daurgandhya*, *Alpaprana* and *Alpamaithuna*.^[10] Subjective symptoms were assessed using Symptom Rating Scale as follows:^[11] and objective parameters i.e. Lipid Profile (Primary outcome), including total cholesterol, triglycerides, HDL, LDL and VLDL, FBS, Body weight, Body Mass Index (BMI) BMI Prime, Anthropometric measurements such as circumferences of Chest, Waist, Pelvis, Hip, Mid- thigh, Mid-Calf, Waist- Height Ratio, Waist- Hip Ratio (Secondary outcome) before and after the treatment. Patients were assessed on subjective parameters at regular 15 days interval after enrolment in the trial.

Statistical analysis

Sigma Stat 4.0 software was applied on data obtained by various parameters, results were calculated in terms of Mean, Median Score, Standard Deviation and Standard error (SE) CI etc. The data obtained were recorded in tabular form and statistically analysed. For intragroup comparison in nonparametric data, Wilcoxon signed rank test and for intergroup comparisons Mann-Whitney Test was used to check the result of intervention in subjective criteria. For intragroup comparison in parametric data Student's Paired 't' test and for intergroup comparisons for parametric data we used Unpaired 't' test. Demographic Observation- By analysing the data, it was found that, out of 40 patients having dyslipidaemia, 40% i.e.12 patients were of age group of 41-50 years (middle age group), 60% of patients were males, 18 i.e. 45% do desk work, 47.5% i.e.19 patients were of *Vata Kaphaja Prakriti*, 50% i.e. 20 patients had *Avara Vyayamshakti*, 37.5% take *Madhura Rasa* dominant diet, 13 i.e.32.5% had a family history of diabetes mellitus, 35% i.e.14)] had weight between 70-80 Kg., 37.5% i.e. 15 fall in the BMI range of 25-27.

Results:

Both the groups proved statistically highly significant (P<0.001) in reducing symptoms like *Kshudra Shwasa*, *Trisha*, *Moha*, *Atinidra*, *Kranthana*, *Angasada*, *Atikshudha*, *Swedadhikya*, *Daurgandhya*, *Alpaprana*, *Alpamaithuna*.

Group A exhibited highly significant (P<0.001) decline in Anthropometric parameters such as Weight, BMI, BMI prime, Waist Height ratio, Waist Hip Ratio, Waist, circumference of Mid- Thigh, significant reduction in circumference of Chest, Hip and Mid-Calf (P<0.05) non-significant in Pelvic circumference (P>0.05), (Table-5) (Graph-2) in biochemical parameters showed significant (P<0.05) reduction in Fasting Blood Sugar, non-significant reduction in Serum VLDL and HDL.

Group B presented highly significant (P<0.001) decrease in anthropometric parameters (Table-5) (Graph-2) such as Weight, Waist Height Ratio, significant decline (P<0.05) in Waist Hip Ratio, Waist, circumference of Mid-Thigh, Chest, Hip and Mid-Calf, non-significant decrease (P>0.05) in BMI, BMI prime, Pelvic circumference, in biochemical parameters, Highly significant change in (P<0.001) in Serum Total Cholesterol, Serum Triglycerides, significant reduction (P<0.05) in Serum LDL and Fasting Blood Sugar, non-significant drop in Serum VLDL and HDL. Comparison between both the groups in terms of percentage relief is shown in Table No.-1.

Discussions: A perfect therapy breaks the disease's aetiology without any side-effects. It is the overall impact of all the components that play a key part in ailment therapy. In *Medoroga*, together with *Medodhatvagnimandya* and *Srotorodha*, *Vata* and *Kapha Doshas* are engaged. The therapeutic methods and medicines utilised in this study therefore have the qualities of *Vatakapha Shamaka*, *Deepana*, *Srotoshodhaka*, *Pachana* and *Medohara*. Both the groups showed remarkable relief in subjective parameters (*Kshudra Shwasa*, *Trisha*, *Moha*, *Atinidra*, *Kranthana*, *Angasada*, *Atikshudha*, *Swedadhikya*, *Daurgandhya*, *Alpaprana*, *Alpamaithuna*). Above symptoms are a result of *Srotorodha* due to accumulation of excess *Meda* in body, after *Sanshodhana* by *Virechana* / *Kshara Basti*, *Kapha Dosh* and *Medodhatu Vridhi* ceases, *Srotasa* are cleared and *Jatharagni* and *Dhatvagni* performs their normal function and *Dhatu* get proper *Poshana*, in addition *Katu*, *Tikta* and *Ushna Dravya* in *Vidangadi Churna* do not allow the *Doshas* to deposit in *Srotasa* again.

The Inter-group comparison showed that *Virechana Karma* proved to be more effective in reduction of Anthropometric parameters such as Weight, BMI, BMI prime, Waist Height ratio, Waist Hip Ratio, circumferences of Waist, Mid- Thigh, Chest, Hip and Mid-Calf. This can be explained as, *Virechana Karma* being a *Sanshodhana Karma*, by virtue of *Rechana* and *Sramsana Karma* eliminated *Pitta* accompanied with *Drava Shleshma* and liquified *Baddha Meda*, cleared the *Avarana* to *Vata* in *Srotasa*, corrected *Agnisandhukshana*, prevented *Adhyashana* and production of *Ama Medodhatu* in excess, thus corrected metabolism and managed BMI and weight. By stimulating pancreas and liver, induced the secretion of gut hormones like peptide, pancreatic polypeptide, glucagon-like peptide, CCK 37 etc. that led to contraction of gallbladder. Raised levels of these hormones controlled the activity of gut- brain axis and balanced the appetite, thus proved effective to manage the weight and BMI.^[12]

Kshara Basti administered in the schedule of *Kala Basti* proved to be more effective than *Virechana Karma* in reducing Serum Total Cholesterol, Serum LDL, Serum Triglycerides.

This may be explained as medicines utilised in *Basti Karma* due to *Medohara* (hypolipidemic) and *Lekhana* in nature facilitated the eradication of *Abadha Meda* (excess lipids) from circulation. *Basti Drava* formed from ingredients like *Madhu*, *Saindhava*, *Yavakshara*, *Ushna*, *Tkshna Kashaya* acted as hypertonic solution, facilitated the transport of waste products (LDL cholesterol) from cellular levels to large intestine to be removed from the body through rectum. The cholesterol reduction of *Basti* might be due to inhibition of acetyl Co-A reductase enzyme, regarded as a part of the *Vata Dosh*. *Basti* after entering portal circulation reached the liver, facilitated synthesis of bile salts which enhanced the break-down of fats and prevented fat deposition in liver and in blood cells^[13]

Probable Role of individual contents in Basti-

Contents used in the preparation of *Basti* such *Gomutra*, as having *Ushna*, *Tikshna*, and *Laghu Guna*, *Ushna Virya*, *Katu Vipaka*, *Kaphavatahara* properties and predominance of *Vayu* and *Agni Mahabhuta* corrected *Kapha* and *Medovridhi* (*Vyadhi Viprita Chikitsa*). Nitrogen and copper present in *Gomutra* helped in excretion of fat in the form of *Kleda*. Copper inhibited fat from accumulating in the body and organs.^[14] Studies proved that *Triphala* due to *Kaphavatahara* and antilipidemic action reduced the levels of total cholesterol, LDL, VLDL and free fatty acids in rats fed on atherogenic diet by stimulating bile secretion.^[15] *Haridra* (Turmeric powder) due to presence of an alkaloid curcuminoids, showed reduction in total cholesterol and LDL cholesterol level. *Yavakshara* by virtue of its *Kledahara*, *Chedana*, *Kapha Nissaraka*^[16] properties scrapped the *Badha Meda* from body and also prevented abnormal deposition of adipose tissues in the body. *Daruharidra* proved effective due to the presence of an alkaloid Berberine which has cholesterol-lowering, hypoglycemic and insulin sensitizing effects.^[17] Aqueous as well as alcoholic extracts of the rhizomes of *Mustaka* (2000 mg/kg) showed significant lipid lowering activity in rats.^[18] A research on the impact of *Shyonaka* (oroxylum indum) extract on biomolecular and adipogenic changes in 3 T3 L1 adipocytes has shown that extract may restrict lipid and carbohydrate storage in adipocytes and inhibit an enzyme related to fat absorption.^[19] *Madhu* is effective in *Medoroga* due to its capacity to inhibit HMG-CoA reductase enzyme, that is responsible for cholesterol synthesis in the body, decreasing LDL, triglycerides, and raising HDL levels. *Saindhava Lavana* having the properties like *Vishyandi*, *Sukshma*, *Tikshna* and *Vataghna*, stimulated evacuation of bladder and rectum.^[20]

Contents in Vidangadi Churna such as *Vayvidanga Yava*, *Nagara*, *Loha Bhasma*, *Yavakshara* and *Amalaki* due to *Katu Rasa*, *Laghu*, *Ushna*, *Ruksha*, *Meda-Kapha*, *Lekhana* properties proved to be helpful in *Samprapti Vighatana* of *Medoroga* (*Vyadhipratyanika Chikitsa*). *Vayavidanga* is mentioned in context of *Atisthoulya*. A quinone derivative Embelin present in fruits has Anti adipogenic property. Due to high water soluble fibre (3.9%) content, *Yava* reduced appetite. Due to *Purisha Krita* property of *Yava* increased the quantity of *Purisha* by eliminating excess of fat from the body.^[21] *Amalaki* due to *Amla*, *Madhura*, properties performed *Guru Evam Atparpana Chikitsa* mentioned for *Medoroga*. *Loha Bhasma* having antihyperlipidemic properties, study on aqueous extract of *Trayushanadi Loha* showed a significant decrease in the levels of serum cholesterol, triglycerides, hyperlipidaemia, *Shunthi* showed results due to hypolipidaemic / antiatherosclerotic, antidiabetic and cardiotoxic properties.

Conclusion:

Both the groups (A and B) proved effective in reduction of symptoms of *Medodushti* like *Kshudrashwasa*, *Trishna*, *Moha*, *Atinindra*, *Krathana*, *Angasada*, *Swedadhikya*, *Atikshudha*, *Daurgandhya*, *Alpaprana*, *Alpamaitihuna*. *Virechana Karma* followed by *Vidangadi Churna* given in Group A proved better in reducing Anthropometric parameters such as Weight, BMI, BMI prime, Waist Height ratio, Waist Hip Ratio, Waist, Mid- Thigh, Chest, Hip and Calf and fasting blood sugar. *Kshara Basti* followed by *Vidangadi Churna* showed better results in reducing Anthropometric parameters such as Weight, Waist Height Ratio, BMI, BMI prime, Waist Hip Ratio, Waist, Mid -Thigh, Chest, Hip and Calf, Serum Total Cholesterol, Serum Triglycerides, Serum LDL and fasting blood sugar due to its *Kaphavatahara* and anti lipidemic action. Reduction in levels of Serum VLDL and HDL were almost similar in both groups.

TABLE 1- PECENTAGE RELIEF IN BOTH GROUPS-

Variables	% Relief in Group A	% Relief in Group B
Kshudrashwasa	89.80	88.00
Trisha	85.19	62.07
Moha	91.23	94.55
Atinindra	88.14	94.92
Kranthan	94.34	94.74
Angasada	87.30	91.53
Atikshudha	92.98	94.83
Swedadhikya	96.77	89.55
Daurgandhya	98.53	98.36
Alpaprana	95.38	93.94
Alpamaitihun	84.91	85.71
Weight (Kg.)	6.989	5.757
BMI	3.704	2.393
BMI Prime	3.366	1.872
Waist-Height Ratio	7.434	5.336
Waist-Hip Ratio	1.974	1.784
Chest Circumference	1.326	1.289
Waist Circumference	2.312	1.398
Pelvis Circumference	1.058	0.943
Hip Circumference	4.611	0.896
Mid -Thigh Circumference	2.135	1.124
Mid- Calf Circumference	0.893	0.476
Serum Total cholesterol	1.193	17.857
Serum LDL	3.778	26.783
Serum Triglycerides	6.446	24.806
Serum HDL	7.293	9.042
Serum VLDL	13.599	14.910
FBS	10.966	6.692

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