



## Research Article

### CLINICAL EFFICACY OF *UDVARTANA* WITH *LEKHANA BASTI* IN HYPERCHOLESTEROLEMIA

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#### ABSTRACT

Now a day, due to increase in industrialized population include a sedentary lifestyle and a diet characterized by the excessive consumption of saturated fats, trans fatty acids and cholesterol which tends to increase blood cholesterol levels. Raised total cholesterol is a major cause of disease burden in both the developed and developing world as a risk factor for Ischemic heart disease and stroke. In *Ayurveda*, this condition can be considered under *Santarpanothavyadhi*. Due to *Santarpanothanidanas* there will be increase in the *Pichilla* and *Snehagunas* which in turn causes *Ama*, if further same *Nidanas* are continued leads to *Madhuratara* of *Ama* and *Annarasa* causes the circulation of increased *Medaie*: *Shareera Anukraman Atisnehan Medo Janayati*. To combat this condition *Acharyas* have mentioned about *VatagnaAnnapana*, *Ruksha- Ushna* i.e., *Ruksha Udvartana*, *Lekhana Basti* etc lines of treatment. Hence this study was taken up to see the efficacy of the treatment protocol mentioned for the better management.

It was an open label clinical study done on 10 patients. Patients were subjected to *Sarvanga Udvartana* with *Kolakulathadichurna* and *Lekhanabasti* for a period of fifteen days. In the present study, the effect of the treatment has shown statistically Highly Significant ( $p < 0.01$ ) results on Serum Cholesterol and LDL. As the study was conducted to know the combined effect of *Bahyaupakrama* along with the *Lekhanabasti*, the usefulness of individual *Upakrama* found limited. So probably administration of these *Upakramas* in single dimension one after the other along with proper diet and physical exercise in frequent intervals may yield good results.

**KEYWORDS:** Hypercholesterolemia; *Udvartana*; *Lekhanabasti*; Lipid profile.

#### INTRODUCTION

In the present era, industrialized population include a sedentary lifestyle and a diet characterized by the excessive consumption of saturated fats, trans fatty acids and cholesterol which tends to increase blood cholesterol levels.<sup>[1]</sup> Globally, one- third of ischemic heart disease is attributable to high cholesterol. Overall, raised cholesterol is estimated to cause 2.6 million deaths (4.5% of total) and 29.7 million disability adjusted life years. Raised total cholesterol is a major cause of disease burden in both the developed and developing world as a risk factor for Ischemic heart disease and stroke. A 10% reduction in serum cholesterol in men aged 40 has been reported to result in a 50% reduction in heart disease within 5 years.<sup>[2]</sup>

In *Ayurveda*, this condition can be considered under *Santarpanothavyadhi*. During the process of *Aharapachana*, the *Kapha* is produced as the *Mala rupa* of *Rasa pachana*.<sup>[3]</sup> If an individual indulging in *Shleshmalaaharasevana*, *Adhyashana*, *Ayavyama*,

*Divaswapana* there will be an alteration in this metabolic process there by impairing the *Atmarupa* of *Kapha*, in turn increases its *Pichilla* and *Snehaguna* which causes *Ama* leading to *Madhuratara* of *Annarasa* further forms *Shareera Anukrama Atisneha* leading to the stage of increase in *Medas*. This pathological sequence can be comparable to conditions like hypercholesterolemia.

Considering the *Nidanas* our *Acharya* s mentioned about the administration of *Katu*, *Tikta Kashaya rasa pradhana*, *Ruksha Ushnagunapradhana* lines of treatment to combat this condition.<sup>[4]</sup> Accordingly, treatment modalities like *Ruksha Ushna Basti*, *Lekhana Basti*,<sup>[5]</sup> *Ruksha Udvartana*, internal administration of *Virukshaniya* and *Chedaniyadravyas* are described.

Thus with the above concept, a randomized clinical study was done to evaluate the synergetic efficacy of *Udvartana* and *Lekhana Basti* in Hypercholesterolemia.

**Objective of the Study**

- To evaluate the therapeutic effect of *Udvartana* with *Lekhanabasti* in Hypercholesterolemia.

**Materials and Methods****Source of Data**

- Ten patients with Hypercholesterolemia who fit for *Basti karma* and *Udvartana* were selected for the study from the OPD and IPD of SKAMC, H&RC, Bangalore -104.

**Diagnostic Criteria:**

Based on the serological investigations ATP III guidelines;<sup>[6]</sup>

- LDL > 100mg/dl
- Total Cholesterol > 200mg/dl
- HDL < 30mg/dl

**Inclusion Criteria**

- Patients having one or more of the diagnostic criteria with or without obese/overweight.
- Patients fit for *Bastikarma*<sup>[7]</sup> and *Udvartana*.
- Patients of either sex between the age group of 18 to 60 years.

**Exclusion Criteria**

- Patients unfit for *Basti karma*<sup>[8]</sup> and *Udvartana*.
- Other systemic diseases which intervenes with the course of treatment.

**Study Design**

- 10 patients of Hypercholesterolemia were selected for the study.
- Patients were subjected to *Sarvanga Udvartana* with *Kola-kulatthadichurna* and *Lekhanabasti* for a period of fifteen days.
- Post-test of investigation was done on the 16<sup>th</sup> day of treatment.

**Materials**

- Udvartana* was done with *Kola-Kulatthadichurna* for the duration of 35minutes.<sup>[9]</sup>
- After *Sarvanga Udvartana* patients were asked to take warm water bath and then rest for about 15 minutes. Later *Sthanikaabhyanga* was done with *Triphaladitaila*<sup>[10]</sup> followed by *Sthanika*

**Result on Serum Cholesterol****Table 1: Effect of the Treatment on Serum Cholesterol**

Serum Cholesterol								
BT			AT			Paired 't' test		
Mean	S.D	S.E.M	Mean	S.D	S.E.M	't'	p	Re
211.2	14.40	4.55	198.6	12.21	3.86	4.3520	<0.01	HS

*Nadi Sweda* to *Shroni*, *Kati*, *Vankshana* and *Pakwashayapradesha* and then *Basti* was administered.

- Lekhanabasti* was administered in the pattern of *Kala basti*<sup>[11]</sup> (6 *Niruhabastis* of *Matra*-575ml<sup>[12]</sup> and 9 *Anuvasanabastis* of *matra*-140ml alternatively).
- Madhu*-70ml, *Saindhava* *lavana*-5gm, *Yavakshara*-10gm, *Katu taila*-80ml, *Lekhaniya-ganadravya* *kalka*-40gm, *Triphala kwatha*-300ml, *Gomutra*-70ml.
- Anuvasanabasti* with *Triphaladitaila*.
- After *Basti*, in the *Paschat karma* was advised about rest, *Laghuaharapatya* and instructed about *Astavarjya bhavas*.

**Assessment criteria**

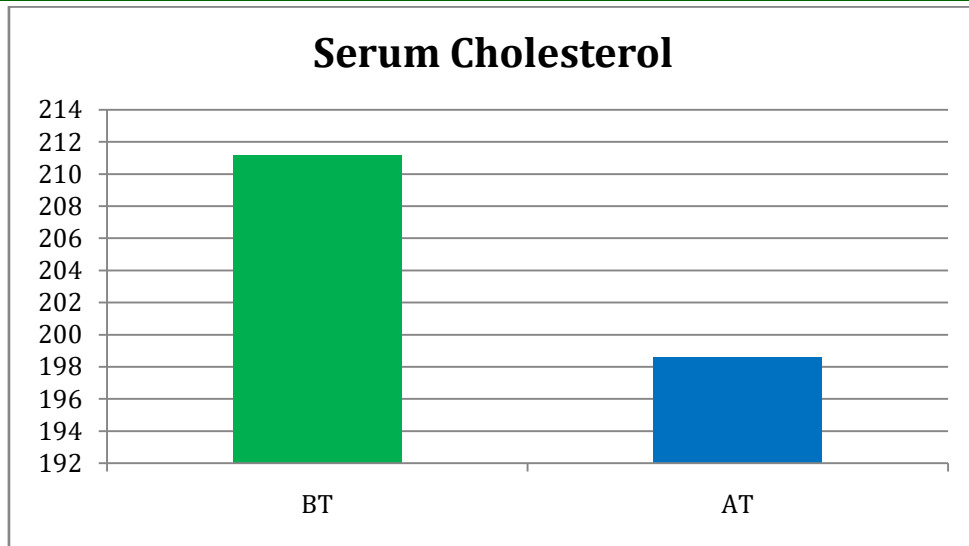
Assessment was done before the treatment and after the treatment.

- Total Cholesterol
- LDL
- HDL

**Observations**

- Among 10 patients maximum of 8 (80%) were female and 2 (20%) were male.
- 5 (50%) patients in between the age group of 25-35 years, 3 (30%) patients in between the age group of 36-45 years and 2 (20%) patients in between the age group of 46-55 years.
- All the patients were married.
- Maximum of 5 (50%) patients were house wives and 3 (30%) were in Social service, 1 (10%) was yoga instructor and 1 (10%) was Bank employee.
- Maximum of 7 (70%) patients were having the chronicity of 1-10years, 2 (20%) patients were of 11-20years and 1 (10%) patient was with chronicity since 43 years.
- All the patients in the study belong to *Kapha-Vataprakruti*.

**Results:** The results of the study parameters after the treatment are as follows;



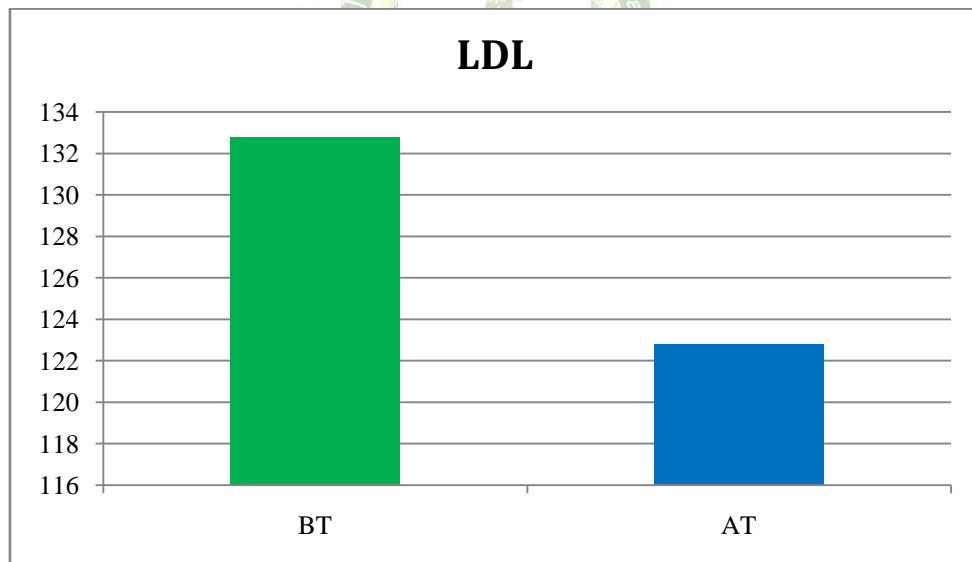
**Graph No.1 - Effect of the treatment on Serum Cholesterol**

The mean score of Serum Cholesterol before treatment was 211.2 reduced to 198.6 after treatment

**Result on LDL**

**Table 2: Effect of the treatment on LDL**

LDL								
BT			AT			Paired 't' test		
Mean	S.D	S.E.M	Mean	S.D	S.E.M	't'	p	Re
132.8	22.0	6.96	122.8	13.04	4.12	2.0319	<0.01	HS



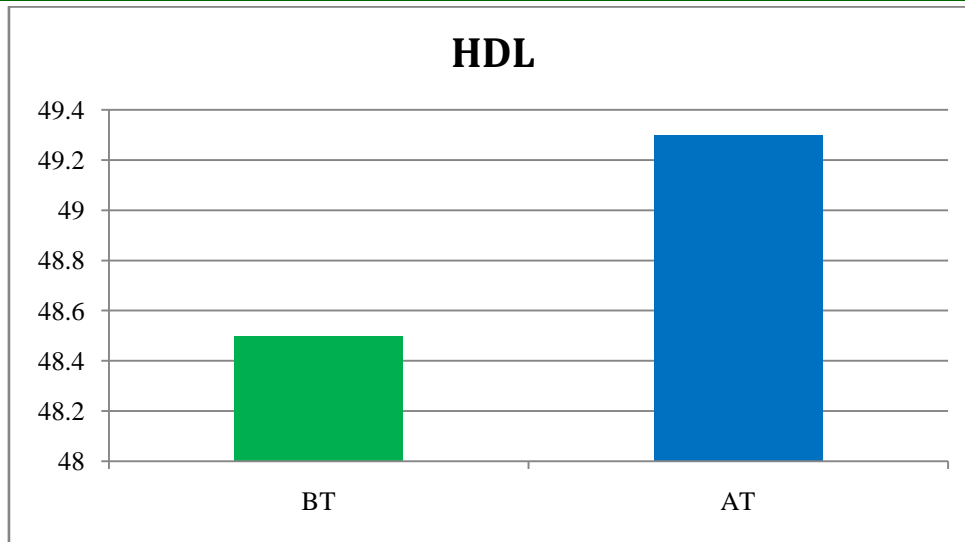
**Graph No.2 - Effect of the treatment on LDL**

The mean score of LDL before treatment was 132.8 reduced to 122.8 after treatment.

**Result On HDL**

**Table No.3 - Effect of the treatment on HDL**

Serum Cholesterol								
BT			AT			Paired 't' test		
Mean	S.D	S.E.M	Mean	S.D	S.E.M	't'	p	Re
48.50	4.01	1.27	49.30	3.74	1.18	1.1239	>0.05	INS



Graph No.3 - Effect of the treatment on HDL

## DISCUSSION

In Hypercholesterolemia there is raise in serum cholesterol levels which can be defined in different requisites like *Shareera Anukrama Atisneha, Raktagata Sneha, Medodosha, Kaphamedavrutavata, Shonithabhisya*. In all these the prime *Dushyas* are *Kapha, Meda, Rasa* and *Rakta*. Hence to combat this condition *Acharyas* mentioned about *Vatagnaannapana, Shleshmamedohara* lines of treatment, *Ruksha-ushna Basti, Ruksha Udvartana* etc. In the present study, *Sarvanga Udvartana* with *Lekhana Basti* was given for 10 patients of Hypercholesterolemia and the assessment was done before the treatment and after the treatment. It was found to be statistically highly significant ( $p < 0.01$ ) results in parameters Serum Cholesterol and LDL. i.e., the mean score of Serum Cholesterol before treatment was 211.2 reduced to 198.6 after treatment and the mean score of LDL before treatment was 132.8 reduced to 122.8 after treatment.

This effect of treatment was probably due to; *Udvartana* has the beneficial effects like *Kaphahara, Vatahara, Pravilayana* of *Medas, Sthirakarana, Twakprasadakara* which are antagonistic to the condition. *Lekhana* is a process of *Karshana* which causes *Dhatu, Mala* and *Dehavishoshana*. *Lekhana Basti* is a form of *Ushna Tikshna Basti* in which the durgs contains *Katu, Tikta* and *Kashaya Rasas, Katu Vipaka* and *Ushna Veerya* mainly which acts directly on *Kapha* and *Medas*.

### Mode of action of Udvartana

Due to rubbing mechanism of *Udvartana* in *Pratilomagati* the form of touch, pressure and vibration sensations, the tactile receptors in the skin get stimulated. This causes deformation of deeper tissues by influencing on mechano-receptive somatic senses and thermo-receptive senses, in turn

produces heat in the skin leads to warmth in blood. Further activates the heat sensitive neuron which in turn carries the signal to heat gain center situated in the posterior hypothalamus nucleus. Thus, activates the sympathetic center and normalizes the secretion of adrenalin and nor adrenaline, which accelerates the normal cellular metabolic activities hence, maintains the normal homeostasis.<sup>[13]</sup>

In other view due to the mechanism in *Udvartana*, if the heat produced becomes excessive, the activated heat sensitive neurons carries the signal to the heat loss center situated in the anterior pre-optic nucleus in hypothalamus which sends inhibitory impulses to sympathetic center causes increases in the peripheral vasodilation. So the cutaneous and subcutaneous blood flow increases and also simultaneously the sweat pores in the skin get opened causes profuse sweating there by removes the excess of heat produced along with the elimination of the toxins through sweat.<sup>[14]</sup>

This above mechanism is explained by *Acharya Sushruta* as, by performing *Udvartana* there occurrence of *Gharshana* due to which the *Viviktatva* of the *Siramukha* in the *Srotas* caused. This in turn activates the *Agni* seated in the *Twacha*. Thus, causes the *Pachana* of the *Dushita Doshas* and excreted out in the form of *Mala* through *Sweda*.<sup>[15]</sup>

### The mode of action of Basti

It can be explained, as the *Bastidravya* inserted through *Bastinetra* in *Gudapradesha* reaches *Pravahini* and *Visarjinigudavalis*. By the pressure applied in the *Bastiputaka* the *Bastidravya* gets pushed further into *Antra*. It traverses whole of *Pakvashaya* including *Antra* and reaches upto *Nabhipradesha*. *Pakvashaya* is the chief organ for the action of *Basti* and is the *Ashaya* where the *Dravya* can stay for some time. *Jataragniamsha* is present in

*Pakvashaya* as *Katu Avasthapaka* takes places here. The *Agni* here has only *Shoshana guna* and avoids any complex digestion chain formations. From their the *Veerya* of the *Bastidravaya* spreads all over the body similar to the water poured at the root of a tree reaches until the end of the leaves through the various channels.<sup>158</sup> Various branches of *Adhogamidhamanis* present in *Pakvashaya* absorb the *Veerya* and carry it to *Urdhvagami* and *Tiryakgami-dhamanis*. In *Basti* it is the *Veerya* of the *Dravya* which brings about an action.<sup>[16]</sup>

#### CONCLUSION:

The present study was conducted stressing upon the therapeutic perspective to know the combined effect of the *Shodhana* procedures in terms of both *Bahya* and *Abhyantara* i.e., *Udvardana* is a *Bahir parimarjanachikitsa*; as *Parimarjana* is the *Paryaya* of *Shodhana*, this can be considered as *Bahya Shodhana* procedure. *Basti karma* is the *Abhyantara Shodhana*, in which *Lekhana Basti* is indicated for *Kaphadosha* and *Medodhatuvikaras*.

The effect of treatment was shown statistically Highly Significant results after treatment in the parameters of Serum Cholesterol and LDL.

This study was a multi dimensional approach, to know the synergistic effect of *Udvardana* and *Lekhana Basti*. Hence, each treatment independently in larger sample size, with frequent intervals, with proper diet and physical exercise will yield further better results.

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