Short Communication

Short term escalating administration of large amount of sneha does not increase blood lipids

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A B S T R A C T
Vardhamana snehapana or shodhana sneha is classical Ayurvedic treatment in which escalating dose of sneha or ghee is administered for utkleshana (precipitation and dilution) of morbid doshas in body. Due to snehana and swedana, doshas get separated from dhatu, channelized towards koshtha, from where they can be easily and safely removed by appropriate cleansing therapy or shodhana like vamana (emesis) or virechana (purgation). Since this type of snehana requires administration of large amount of sneha or ghee there is fear that patients may experience increase in harmful lipids. The present study examined the effect of vardhamana snehapana on relevant physical and physiological parameters in normal individuals before and after samyak snehana and shodhana. Vardhamana snehapana was administered in healthy individuals according to agni and koshtha to achieve samyak snigdha lakshanas (symptoms of proper oleation). We assessed parameters of vardhamana snehapana in all individuals including samyak snigdha lakshanas, jeeryama lakshanas, total quantity of sneha consumed. Effect of vardhamana snehapana on weight, abdominal circumference and lipid profile were measured before and after vardhamana snehapana. Statistical significance of results were quantitated by paired t test. After vardhamana snehapana, 16 out of 29 volunteers showed a significant weight loss of >2 kg (p < 0.0001). The remaining 13 volunteers showed less but significant weight loss <2 kg (p < 0.0001). Notably, all 29 volunteers showed a significant reduction in abdominal circumference (p ≤ 0.0006) after vardhamana snehapana. Although vardhamana snehapana did not significantly alter levels of total cholesterol, HDL, and LDL, it did cause a significant reduction in triglycerides (p = 0.009) and VLDL (p = 0.005) in all 29 volunteers. Vardhamana snehapana is responsible for precipitation of doshas and does not cause brumhana (Nourishment of dhatu or body elements). Importantly, this treatment did not negatively affect health of any of the volunteers. Notably, Vardhamana snehapana caused different degrees of statistically significant reduction in body weight, abdominal circumference, and levels of specific lipids (triglycerides and VLDL) in these 29 volunteers. These encouraging results could be due to the composition and metabolism of the pure cow’s ghee used for vardhamana snehapana treatment in this study.

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1. Introduction

Ayurveda has the unique treatment modality of snehana (oleation). Four types of sneha (fat) can be used in a versatile manner for prevention and cure of diseases [1, soortrashana, apanagatandulya 13/13]. Ghrita or clarified butter is one of them. For shodhana (purification/cleansing) therapy in Ayurveda, pre-procedure like snehena and swedana (fomentation) are necessary [1, soortrasthana, apamagatandulya 2/15].

Snehana or Snehapana (oleation) is an important pre procedure in shodhana (purification/cleansing). For this procedure, ghee or oil is used in increasing dose pattern. This causes utkleshana (precipitation or separation) of doshas from all body channels. In this vardhamana snehapana method (escalating dose pattern) sneha pervades in all srotasas (body channels). The pathological bonds between dhatu and morbid doshic matter are rendered and become loose by sneha. This sneha counteracts vayu attributes and make the body environment supple. Owing to laxity of dhatu they do not harbor doshas. So when snehana and swedana is administered,
**doshas** leave their anchorite *dhatu* (body tissues) easily without damaging the delicate *dhatu* [1, siddhisthana Kalpa,nasidhidhi 1/7]. This requires 3–7 days duration. During this period a person can consume approximately 300–1000 ml of ghee. So there is fear that patient may experience an increase in harmful lipids due to large amount of ghee consumption.

Secondly cow’s *ghee* available in the market has various origins and different preparation techniques. So this type of ghee may have different impact on lipid profile. Hence with these objectives, the study—the evaluation of the “effect of *vardhamana snehana* (cow’s *ghee*) on lipid profile in healthy individual especially after *snehana* and after *shodhana*” was done. During the study the physical and physiological parameters like weight, abdominal circumference, *samyak snidha lakshanas*, *jeeryama lakshanas* and lipid profile were assessed.

2. Materials and methods

Cow’s *ghee* was selected for the study as it is superior among all four *snehas*. *Ghrita* has the capacity to transform itself so as to imbibe the qualities of substances added to it, keeping its own qualities intact (*Sanskaranuvartana*). To oleate is the innate quality of ghee, it pacifies vata, pitta and does not increase kapha [1, sootrasthanam, annapanavidihi 27/4].

Cow’s *ghee* from Katraj dairy, Pune (Maharashtra) was used. Analysis of *ghee* was carried out at NAFARI, Pune. It reported 88.40 g/100 g amount of saturated fats (Report- Supplementary material Appendix A).

A special Case Record Form was prepared including systemic examination of volunteers including *agni* (digestive capacity), *koshtha* (bowel habit including consistency, frequency of stools), *udara parikshana* (abdominal examination), food habit and *sneha* details. After permission of institutional ethics committee, work was started.

An open label observational perspective clinical study was carried out in Seth Tarachand Ramnath Charitable Hospital, Rasta Peth, Pune, 411011, Maharashtra, India. Candidates accompanying patients, staff were informed about the work and asked them to enroll. There was no control group in this study.

2.1. Inclusion criteria

The candidates who were not suffering from any major illness since two years and no minor illness in previous six months were recruited. Age limit was 20–60 years in this study.

2.2. Exclusion criteria

The candidates with lean or thin body (*krusha*) were excluded. Normal lipid range considered here was HDL >40 mg/dL, LDL 85–150 mg/dL, VLDL 50–150 mg/dL, triglycerides < 150 mg/dL, cholesterol < 200 mg/dL.

Forty one volunteers were screened, among these 30 were selected. One volunteer did not completed lipid profile on time. Total 29 volunteers were enrolled.

2.3. Administration of *snehana*

The examination of volunteers were done as per record form. The increasing dose of ghee was decided according to *Agni* (digestive capacity) and *koshtha* [1, sootrasthanam, snehandhyaya 13/65]. Purpose of giving this *sneha* was to observe the efficacy of *shodhana sneha*. The dose pattern was supported by previous study in the hospital.

Before starting *snehana*, *pachana drug* (*shunthi* — *Zingibar-officinale* 1 gm thrice a day) for 7 days was administered in all volunteers. The next day lipid profile was performed in the laboratory of “Seth Tarachand Ramnath Charitable Hospital”. Volunteers were asked to come early morning for *snehana* with empty stomach. *Snehana* was administered in the morning 6.30–6.45 am. *Ghee* is given in increasing dose order for 4–6 days till *samyaksnigda lakshanas* (proper oleation symptoms) were observed. These are described by Sushruta as *glani, angasada* or *gourava*, adhastat snehadarshana (actual fat in fecal matter) and snehodvega (repulsion for intake of *sneha*) [2].

*Snehana* pattern was fixed increased dose pattern i.e. 40 mL, 80 mL, 120 mL, 160 mL, 200 mL, 240 mL, etc. On the first day, each volunteer received a dose of 40 ml *Sneha*. A daily increase of additional 40 ml was given for up to 4, 5 or 6 days. Total amount of *Sneha* consumed daily per volunteer ranged from 400 ml to 1050 mL.

Regular habitual diet was taken by candidates after observing *jeerna sneha lakshanas* (symptoms after digestion of *sneha*) like *shirashoola*, *daha*, *klama*, etc. [3] After completion of *snehana* the next day morning lipid profile was performed.

Weight and abdominal circumference were recorded before and after *snehana*. Total dose of *snehana* and last day dose was calculated to record *snehathamra*.

Appropriate *shodhana* (*vamana* or *virechana*) was administered according to *doshagati*. Out of 29 candidates, *virechana* was administered in 27 candidates and *vamana* was administered in 2 candidates. Post *shodhana*, *sansarjana krama* (special diet regime to regain *agni*) was advised according to type of *shuddhi* (type of purification—mild, moderate, etc.). After 15 days of *shodhana* lipid profile was performed.

2.4. Assessments

Different independent variables like age, *agni*, *koshtha*, *prakruti* (basic body constitution), etc. were assessed to observe proper oleation symptoms. A separate proforma for *prakruti*, *agni* and *koshtha* were used [1, vimanasthana, roganeekam vimanam, 6/12; ragabhishagjiteeya vimanam, 8/96-98]. Dependent variables like weight, abdominal circumference, lipid profile, *samyaksnigda lakshanas*, *jeeryama lakshanas* were assessed. *Samyaksnigda lakshanas* were assessed with gradation system, *jeeryama lakshanas* were assessed everyday by yes, no pattern.

2.5. Statistical analysis

Paired t-test was used to analyze before and after *snehapana* and after *shodhana* lipid observation. For pre and post *sneha* weight and abdominal circumference, paired t test was used.

3. Results

*Snehapana* was administered in 29 volunteers to achieve *samyak snigdha lakshanas* in 4, 5 or 6 days. These symptoms were achieved on different days and with different quantities of *sneha* in volunteers because of different types of *agni* and *koshtha*. The range of *snehathamra* is 400 ml–1050 mL.

After *snehavirama kala* (resting period after *snehapana*) appropriate *shodhana* was administered. Out of 29 candidates, *virechana* was administered in 27 candidates as they showed adhoga utklesha like *adhodara gourava* (heaviness in lower abdomen). *Vamana* was administered in 2 candidates as they showed urdhva utklesha symptoms like *hrullasa, amashaya gourava, shirashoola* etc. Though the volunteers were healthy, *shodhana sneha* caused *uktleshana of doshas* in the body. Post *shodhana*, *sansarjana krama* (special diet
regime to regain agni) was advised according to type of shuddhi (type of purification-mild, moderate, etc.).

During the study two subgroups were considered-
- Group 1- Candidates showed weight loss ≥2 kg.
- Group 2- Candidates showed weight loss≤2 kg.

They were assessed for weight and abdominal circumference.

Candidates were classified on the basis of agni, koshtha and prakruti in these 2 groups.

After collecting data on dependent and independent variables, we performed statistical tests to assess whether there was any correlation between the status of agni, koshtha, or prakruti of each patient, and their observed weight loss*. Association of agni, koshtha, prakruti with lipids and lipid variation was not assessed.

Lipid profile before and after snehaha and after shodhana were performed and recorded significant reduction in triglycerides and VLDL (Table 4).

This study observed 5 interesting results. First, in spite of consuming large amount of ghee no weight gain was observed in any of the 29 volunteers. This important finding is consistent with the Ayurvedic claim that this type of sneha is not absorbed for the nourishment of dhatu-as it is given in escalating dose pattern. It gets saturated in different body channels and causes separation of dhatu. Hence it will not nourish dhatu. Second, it is notable that our shodhana treatment resulted in a statistically significant decrease in triglycerides and VLDL levels in these 29 volunteers (Table 1). Third, we observed that 16 of the 29 volunteers experienced a weight loss of ≥2 kg and 13 patients showed a significant weight loss<2 kg (p < 0.0001) after vardhamana snehapaana, (Tables 2 and 3). Notably, all 29 patients showed a significant reduction in abdominal circumference. This weight loss and change in abdominal circumference were statistically significant (Table 3).

Fourth, the weight loss and decreased waist circumference in these 16 individuals was not affected by their Prakriti, Agni, or Koshtha status (Figs. 1–3). Fifth, the last two points suggest that a subset of healthy volunteers with certain characteristics may particularly benefit from this shodhana treatment. Additional studies are needed to explain this observation.

4. Discussion

Vardhamana snehaha is classical Ayurvedic treatment in which sneha or fat is administered in increasing dose pattern. The period required to achieve the proper symptoms of snehaha Sanyak snigdha lakshanas is 3–7 days according to koshtha.

During this period morbid doshas get separated from dhatu. This special type of sneha is responsible for utkleshana or precipitation of doshas [4]. According to Ayurveda this type of sneha is not absorbed for the nourishment of dhatu. As it is given in escalating dose pattern it gets saturated in different body channels and causes separation of doshas. Consumption of sneha resulted in reduction of food intake. As the quantity of sneha increases, time required for the digestion of sneha also increases. During last 2–3 days of snehaha single meal is sufficient. In some persons, during snehaha, a small amount of doshas get eliminated through mala/ purisha (feces). Hence there is significant reduction in weight after snehaha and abdominal circumference in one sub-group of patients.

During this study lipid values were found stable after snehaha though large amount of sneha has been administered. In critical review of snehaha by Dr Patil, he mentioned two studies where stable lipids were observed after snehaha [5]. But in another study where Jane et al. found slight increase in triglycerides after snehaha but no considerable rise was noted in other types of lipids [6].

Also Dr Patil in his own study reported significant increase in triglycerides and VLDL but within normal range. These levels came to normal after purification. This increase in triglycerides was contrasted with our study. This difference in findings in these studies and in our study may be due to pattern of administration of sneha and source of ghee used. Patil et al. reported unfixed dose pattern according to agni and he used commercial dairy product ie buffalo ghee from Amul Dairy.

Extra fat which was not digested by agni, was eliminated through faecal matter. In our study we have not monitored this amount of fat. Ramteke et al. reported high fat globules in stool examination during snehaha and after snehaha (p < 0.01). They found that there were no significant changes in blood parameters due to snehaha including cholesterol [7]. Hence excretion of fat in faecal matter should be considered in explaining lipid mechanism or decrease in lipids after snehaha.

After shodhana we found significant reduction in triglycerides and VLDL. Dr. Bagul has proved similar finding that there is decrease in lipids after shodhana and sansarjana krama [8].

While following sansarjana krama (diet regime) after shodhana, laghu ahara (light diet, diet without ghee) is advised which may be responsible for reduction in calorie intake and it may cause reduction in lipids. Afrasiabi et al. showed effect of low calorie diet in Ramadan month on lipids ie it leads to plasma lipid reduction in 28 hyperlipidemic men. Larger sample size is necessary to confirm this finding [9]. Still this study supported the work done by the author.

Hence this may be theory of stable lipids in our study.

The effect of ghee on serum lipid levels and microsomal lipid peroxidation was observed by Vd. Hari Sharma et al. in rat models (2 groups of 5 animals). He concluded that 10% dietary ghee may increase triglyceride level [10]. However, Chinnadurai et al. concluded that ghee has short chain saturated fatty acids and hence easier to digest. It increases excretion of dietary cholesterol and bile acids from gastrointestinal tract in rats model (16 animals fed with ghee). So there is decrease in cholesterol and LDL. Decrease in plasma triglycerides could be due to anti-atherogenic effect of conjugated linoleic acid in ghee. As low as 0.05% CLA is found to reduce total triglycerides by 28% [11]. These two results contrast with our study because these works were done for long period like

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### Table 1

| Candidates | Variable | Before snehaha | After snehaha | P valuea |
|------------|----------|---------------|---------------|---------|
| N = 29     | Weight (Kg) | 60.25 ± 12.16 | 58.65 ± 11.19 | P < 0.0001 |
| N = 29     | Abdominal circumference (Cm) | 80.91 ± 10.51 | 78.74 ± 10.16 | P < 0.0001 |

*Paired t test.

### Table 2

| Group 1 | Weight loss ≥2 kg in 16 candidates. |
|---------|------------------------------------|
| Variable | Before snehaha | After snehaha | P value* |
| Weight (Kg) | 63.46 ± 10.60 | 61.21 ± 10.66 | P < 0.0001 |
| Abdominal circumference (Cm) | 84.87 ± 10.22 | 82.40 ± 10.10 | P < 0.0001 |

### Table 3

| Group 2 | Weight loss <2 kg after snehaha in 13 candidates. |
|---------|------------------------------------|
| Variable | Before snehaha | After snehaha | P value* |
| Weight (Kg) | 56.30 ± 13.56 | 55.5 ± 13.39 | P < 0.0001 |
| Abdominal circumference (Cm) | 76.88 ± 10.65 | 75.07 ± 10.14 | P = 0.0006 |

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*For the full table, please refer to the original document.*
4 weeks. Both studies reported dietary ghee pattern (small amount of ghee) in rat model. Dietary lipid and use of only lipids as snehapana have different mechanism.

Joshi concluded that ghrita prepared by traditional method contains higher amount of DHA, Omega 3 long chain polyunsaturated fatty acids and is important for prevention of various diseases [12]. Thus the method of processing of ghee is important for the precise composition of ghee.

Hence the special composition of ghee and its metabolism in body, light diet after shodhana may be responsible for reduction in triglycerides and VLDL levels after shodhana procedure.

5. Limitations

There was no control group in this study. Standardised and validated formats of proforma of agni, koshtha and prakriti were not used.

6. Conclusion

In conclusion, the published literature on humans and rats suggests that administration of ghee can sometimes decrease levels of serum cholesterol and LDL. Notably, our study found that the use of vardhamana snehapana in 29 healthy volunteers for 4–6 days, caused a statistically significant reduction in abdominal circumference and weight, serum TG, and serum VLDL. Furthermore, 16 out of 29 volunteers showed a significant weight loss of > 2 kg. More studies are needed to fully explain this phenomenon.

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Conflict of interest

None.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.jaim.2020.05.004.

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Table 4

| Sr. No. | Lipid     | Baseline (Before snehapana) mg/dl | After snehapana mg/dl | Completion (after shodhana) mg/dl | P value (from baseline to completion) |
|---------|-----------|----------------------------------|-----------------------|-----------------------------------|---------------------------------------|
| 1       | Cholesterol | 156.31 ± 25.67                    | 155.81 ± 23.95        | 159.11 ± 28.24                    |                                       |
| 2       | Triglycerides | 126.41 ± 9.21                     | 114.86 ± 28.86        | 103.83 ± 35.64                    | p = 0.009                             |
| 3       | HDL        | 44.38 ± 13.66                     | 43.31 ± 07.71         | 42.46 ± 08.81                     |                                       |
| 4       | LDL        | 86.96 ± 24.68                     | 91.89 ± 27.95         | 95.52 ± 26.12                     |                                       |
| 5       | VLDL       | 26.13 ± 06.96                     | 22.89 ± 05.86         | 21.00 ± 07.68                     | p = 0.005                             |

Fig. 1. Types of agni and weight loss. Weight loss was not correlated with any particular agni type.

Fig. 2. Types of prakruti and weight loss. Weight loss was not related with types of prakruti.

Fig. 3. Types of koshtha and weight loss. Weight loss was not correlated with type of koshtha.
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