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Comparative study of *Anuvasana Basti* with constant and escalating dose as an alternative to *Snehapana* in *Purvakarma* of *Vamana* and *Virechana*

Priyadarshani Arvind Kadus*, Surendra M. Vedpathak

Dept. of Panchakarma, BVDU, College of Ayurved, Katraj-Dhankawadi, Pune 43, Maharashtra, India

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ABSTRACT

Background: *Snehapana* is the essential step prior to *Vamana* and *Virechana* (therapeutic vomiting and purgation). But it was found that 10–15% patients are reluctant towards *Snehapana* hence may deprive the benefits of *Shodhana*. These inconveniences made us think about effective alternative to counter drawbacks of *Snehapana*. On the basis of literature review and pilot study, it was confirmed that, *Anuvasana Basti* can be administered as an alternative for *Snehapana*.

Objective: To evaluate *samyak snigdha lakshana* achieved by administration of *Anuvasana Basti* and to evaluate outcomes of *Vamana* and *Virechana*.

Materials and methods: Specially designed *basti* pouches were used according to doses. In group A, constant dose of processed sesame oil (120 ml) and rock salt (500 mg) was used. In group B, the dose was escalating started with 120 ml and 500 mg with 25 ml and 100 mg increase in sesame oil and rock salt respectively for maximum seven days.

Results: Patients from group B showed better results than group A i.e. 29 patients showed symptoms of proper oleation. *Mridu koshtha* required minimum dose and duration for getting proper symptoms of oleation. Outcome of *Vamana* and *Virechana* were also very promising.

Conclusions: Hence it can be concluded that *Anuvasana Basti* in escalating dose can be used as an alternative for *Snehapana*.

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1. Introduction

Shodhana i.e. purification and detoxification therapies need internal and external *Snehana* (oleation) along with *Swedana* (fomentation). They are considered as *Purvakarma* or preparatory procedures of *Shodhana* [1]. *Snehapana* (oral administration of fat) is in practice since ancient times that aims to prepare the body for expelling out the vitiated *dosha* and to protect the body from *vataprakopa* (vitiation of *vata*) after *Shodhana*. Even though this process is important in therapeutics; at least 10–15% patients refuse oral consumption of fat due to aversion in terms of its

smell, quantity, taste and unctuousness, which ultimately pose challenges in the treatment. It was therefore thought that, medicated fat can be administered through anal route which is suggested as an internal route of drug administration by *Dalhana*, a commentator of *Sushruta* [2]. As no previous data were available related to this research work, pilot study was planned with *Anuvasana Basti* i.e. enema as an alternative preparatory process of *Vamana* (therapeutic emesis) and *Virechana* (therapeutic purgation). *Murcchita tila taila* (processed sesame oil) was used as a *snehadravya* (fat substance) as it has got all the required qualities to oleate the body. *Saindhava* (rock salt) was used along with it to help the oil to enter into subtle channel. Observations of pilot study were very encouraging in terms of *samyak snigdha lakshana* (symptoms of proper oleation) without any adverse effects [3]. On the basis of pilot study; the present study was planned where *Murcchita tila taila* along with *saindhava* was used with two different dosage forms as constant and escalating. Total 105

* Corresponding author.

E-mail address: agasti_ayurved@yahoo.com (P.A. Kadus).

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patients indicated for *Vamana* and *Virechana* were allocated in two groups - 52 in constant dose group and 53 were administered escalating dose.

Samyak snigdha lakshana were observed and compared after administration of *Anuvasana Basti* in two different doses. Among these two groups, the group with escalating dose showed maximum patients i.e. 29 with *pravara snigdhatta* (complete and proper symptoms of oleation) As oil enema was given as a preparatory procedure, outcomes of *Vamana* and *Virechana* were also observed.

2. Objectives

The objective was to evaluate *samyak shuddhi lakshana* and outcomes of *Vamana* and *Virechana* after administration of *Anuvasana Basti* as an alternative for *Snehapana*.

3. Methods

Murcchita tila taila (Batch No 11119) was purchased from Agasti Pharmaceuticals, Pune. Characterization of oil was done in Hi – Tech Lab, Pune. Some physico-chemical tests like Refractive Index (1.47 at 25 °C), Iodine value (6.748), Moisture content (below detection limit), Saponification value (193.45), Microbial tests for pathogens like *Escherichia coli*, *Salmonella*, *Staphylococcus aureus* etc. were done. The oil was found free from pathogens.

Basti Putaka (enema pouch attached with catheter) was specially designed according to required quantity of processed sesame oil and rock salt by Agasti Pharmaceuticals, Pune.

Special case paper was prepared, in which systemic examination was documented as per *Ayurvedic* methods. The patients were assessed for *prakriti* (constitution), *agni* (digestive power and intake capacity) and *koshtha*.

After obtaining approval from Institutional Ethics Committee, a randomized open label clinical study was carried out from January 2011 to February 2013. The study has been registered with CTRI (No CTRI/2013/07/003832).

3.1. Inclusion criteria

The patients between age group of 20–60 yrs irrespective of gender and diseases, who are indicated for *Vamana* or *Virechana* (those with *bahudoshavastha*, *madhyamadoshavastha* and *utklishta doshavastha* i.e. increased or perturbed *dosha*) but having aversion for *Snehapana* were included in the study [5] were considered. Healthy volunteers who were willing to undergo *Vamana* or *Virechana* as seasonal *Panchakarma*, were also included in the study.

3.2. Exclusion criteria

Patients who were suffering from anal diseases like haemorrhoids, fissures or fistula etc. (which have been described as contraindications for enema) and patients with *alpadoshavastha* (signs of vitiation of *dosha* in lesser quantity) as this condition of *dosha* is contraindicated for any *Shodhana* process.

3.3. Study protocol

As per the inclusion criteria, patients were screened and allocated in two groups randomly. Computer generated random numbers were considered for randomization.

The patients were randomized in following two groups:

Group A: *Anuvasana Basti* was administered in 52 patients with constant dose of 120 ml of processed sesame oil along with 500 mg rock salt for minimum 3 and maximum 7 days.

Group B: *Anuvasana Basti* was administered in 53 patients with escalating dose. In this group starting dose was 120 ml of processed sesame oil along with 500 mg rock salt increasing with 25 ml of processed sesame oil and 100 mg rock salt daily for minimum 3 days and maximum 7 days (Table 1). As *Anuvasana Basti* is considered as an internal route of drug administration, maximum period of administration of *Anuvasana Basti* was kept 7 days, which is same as that of *sneha prakarsha kala* i.e. maximum limit of the duration for administration of fat orally [4].

In group A, 2 patients discontinued the treatment and in group B, 3 patients dropped out. Thus two groups of 50 patients each were studied.

Total plan of the treatment was explained to patients in their own language and written consent was taken from every patient.

If *sama jivha* (coating of a tongue due to indigestion) was observed; *Hingvashtaka Churna* in the dose of 1 gm was given with warm water before meal for 3–5 days prior to the main course of treatment.

Ayurvedic rescue treatment was kept ready if any adverse effect was observed. The parallel treatment if any (allopathic treatment for Diabetes or Hypertension) was continued.

4. Standard operative procedure for *Anuvasana Basti*

Every patient was asked to come to *Panchakarma* department immediately after having a breakfast (around 9.30 am). Warm sesame oil was applied on abdomen and lumbar region and fomentation with *Nadi Sweda* (fomentation by localized steam) was done. Patient was asked to lie on the left lateral position with left leg extended and right leg flexed at knee joint. Specially designed enema pouch with prescribed quantity of processed sesame oil and rock salt was kept in warm water for 15 min to make the contents warm.

A lubricated catheter was inserted inside the anus. The oil was pushed inside slowly and steadily. Patient was asked to lie on the bed in supine position for ten minutes. Patient was advised to drink lukewarm water throughout the day and immediately after administration of oil enema. Feeling of hunger was observed in all patients and accordingly they were advised to have light diet, preferably soup of green gram whenever they felt hungry. Daily assessment was done for symptoms of proper oleation.

Other procedures like external oleation and fomentation were carried out in the same manner as that of our routine *Shodhana*.

5. Statistical analysis

To examine the association between symptoms of proper oleation and treatment group Chi-square test was applied. Paired t

Table 1
Escalating dose administration.

Day	1st day	2nd day	3rd day	4th day	5th day	6th day	7th day
Dose of processed sesame oil + rock salt	120 ml + 500 mg	145 ml + 600 mg	170 ml + 700 mg	195 ml + 800 mg	220 ml + 900 mg	245 ml + 1000 mg	270 ml + 1100 mg

test was applied to find significance of the symptom 'unctuousness of skin' in each group before and after the treatment. Inter group unctuousness of skin was assessed by applying unpaired t test. To find significant association of proper symptoms of oleation, unpaired t test and Z test for proportion were applied. Student's t test was applied for two independent groups to find out the association between retention period of *Anuvasana Basti* and grades of oleation.

6. Results

The assessment was done on the basis of *samyak snigdha lakshana* [4] except *agnidipti* i.e. increased digestive capacity of gastric fire and *snigdha varcha* i.e. unctuousness of stool.

To give objectivity, score was assigned to all *samyak snigdha lakshana*. The detail score pattern is given in (Table 2).

In group A, 7 patients, where as in group B, 29 patients showed *pravara snigdha* (maximum symptoms of proper oleation). 7 patients from group A, had *asnigdha lakshana* [4] (minimum or incomplete symptoms of proper oleation) but no one from group B was found in this category. In group A only 3 patients had symptoms of proper oleation on 6th day but in group B i.e. with escalating dose, symptoms of oleation started from 4th day.

It clearly indicates that, in increasing dose of *Anuvasana Basti*, maximum patients can achieve *pravara snigdha* grade with lesser duration. Where as in constant dose of *Anuvasana Basti*, there are lesser chances of getting *snigdha*.

In both groups, most of the patients i.e. 48 in group A and 49 in group B, achieved very good *vatanulomana* (proper evacuation of stool, flatulence and urine). As *vatanulomana* is the symptom of proper administration of *Anuvasana Basti*, this symptom may appear in both groups irrespective of the dose [6].

In group A, 19 patients and in group B, 15 patients were noted having the symptom *angalaghava* (lightness of body). The value of Chi-square is 16.97 and P is 0.000 which shows significant association.

In group A, 20 patients and in group B, 3 patients showed no change in their consistency of faecal matter whereas 30 patients of group A, and 46 patients of group B had *asamhata varcha* (loose, semisolid stool).

The observations indicate that, increasing quantity of oil through enema can oleate *pakwashaya* (rectum with large intestine) and hence the symptom *asamhata varcha* can be seen. Significant association is found as Chi-square = 16.93 and P = 0.000.

Only 7 patients of group A showed *klama* (exhaustion without exertion) where as 28 patients of group B were recorded *klama*. The value of Chi-square is 28.154 and P = 0.000 which shows significant association.

In group A, 27 patients showed *twak mardava* i.e. softness of skin and 18 showed *snigdha twak* (unctuousness of skin). In group B, 12 patients showed softness of skin and 34 patients had unctuous skin. Significant association was found as value of P is 0.005 with Chi-square = 10.80.

For the assessment of *snigdha twak*; Pin Test [7] was done in which a drop of sesame oil (in the size of pin head) was kept on the dorsal part of the palm and the time of absorption in seconds was recorded before and after completion of the *Anuvasana Basti* course. The logic behind this is, when unctuousness of skin increases, the absorption period of oil will also increase.

In group A, $t = 2.26$ and $p = 0.02$ which shows significant association. In group B, $t = 7.4$ and $p = 0.00$ which also indicates significant association. It clearly indicates the increase in unctuousness of skin in both groups but more in Group B (Table 3).

Inter group association of scores of unctuousness of skin was found significant as p value is 0.00 (Table 3).

Symptoms of proper oleation were found appearing on different days in both groups. As *Snehana* process proceeds, the symptoms appear one by one. *Vatanulomana* was observed in initial days followed by *angalaghava*, *asamhata varcha*, *klama* and *snigdha twak*.

In group A, *vatanulomana* and *angalaghava* were seen from 1st day. *Asamhata varcha* was observed from 5th day of administration of *Anuvasana Basti*. *Klama* and *twak snigdha* were observed from 6th day.

In group B, *vatanulomana* was seen from 1st day. *Angalaghava* was noted from 2nd day. *Asamhata varcha* was observed from 3rd day of administration of *Anuvasana Basti*. Patients showed *klama* from 4th day whereas *twak snigdha* was found from 5th day.

In this study we observed that *mridu koshta* (tendency of a patient to pass loose stools) required less period and dose for getting symptoms of proper oleation than *madhyama* (tendency of a patient to pass soft stools) and *krura koshta* (tendency of a patient to pass hard stools) in both groups but especially in group B.

Differences in average *dharana kala* i.e. retention period in group A ($4.72, \pm 1.39$) and group B (6.30 ± 3.16) were found to be highly significant. ($P < 0.05$) (Table 4) It was observed that *dharana kala* is increased in both groups but it is more in group B and so as *pravara snigdha* (Fig. 1).

Proper symptoms of *Virechana* were observed by two methods. *Antiki shuddhi* i.e. the *dosha* excreted on the last bout of *Virechana*. And *vaigiki shuddhi* i.e. the total bouts of *Virechana* [8].

Kaphanta Virechana and *madhyama vega* (*kapha* excreted on the last bout with total episodes in between 11 and 20) were observed more in group B than group A.

Antiki and *vaigiki shuddhi* were observed in *Vamana* also in the same manner as that of *Virechana* [8]. *Pittanta Vamana* and *Uttama Vega* (excretion of *pitta* in the last bout and total bouts were 7–8) were observed more in group B than group A. In the present study, the diseases which are indicated for *Vamana* or *Virechana* (with *bahu*, *madhyama* or *utklishta dosha*) were included. Hence all the patients were categorised according to the quantity of vitiated *dosha*. The patients with *bahu doshavastha* were 23 in group A and 26 in group B. 5 patients of group A and 14 patients of group B were recorded *utklishta doshavastha*. *Madhyama doshavastha* was found in 16 patients of group A and 7 of group B. 6 patients of group A and 3 patients of group B were registered only for *swasthya rakshana* i.e. to maintain the health but still were advised to undergo *Vamana* or *Virechana*. None of the patients had any adverse events.

Table 2
Scoring pattern of *Samyak snigdha lakshana*.

Score	VL	AL	KL	ST	AV
0	Improper Evacuation of flatus, faeces, urine and absence of belching	Usual lightness of body	As usual	Softness of skin	Soft stool
1	Heaviness of abdomen due to full of flatus, belching	Heaviness of body	Enthusiastic	Dryness of skin	Hard stool
2	Proper Evacuation of flatus, faeces and urine	Lightness of body	Exhaustion without much exertion.	Oiliness of skin	Loose stool

VL: vatanulomana, AL: angalaghava, KL: klama, ST: snigdha twak, AV: asamhata varcha.

Table 3Intra group and inter group association of scores of *snigdha twak* by using Unpaired t test.

	Gp		Mean	± SD	Std. error	t value	P value
Intra group association	Group A	BT	143.98	82.81	11.71	2.26	0.02
		AT	162.90	105.53	14.92		
	Group B	BT	146.40	82.61	11.68	7.4	0.00
		AT	293.08	186.02	26.30		
Inter group association	Group A		162.90	105.53	14.92	4.3	0.00
	Group B		293.08	186.02	26.30		

Table 4Distribution of patients according to grades of *samyak snigdha lakshana* within *dharana kala* of *Anuvasana Basti*.

Gp	Grades of SSL	Mean	N	Std. deviation
Gp. A	<i>Asnigdha</i>	2.0486	7	0.95702
	<i>Avara</i>	3.6256	20	1.42639
	<i>Madhyam</i>	4.1250	16	1.91352
	<i>Pravara</i>	4.7279	7	1.39510
Significance using ANOVA	Between groups	0.0120		
	Linearity	0.0020		
Gp. B	<i>Avara</i>	3.6429	5	1.81968
	<i>Madhyam</i>	4.8384	16	1.99637
	<i>Pravara</i>	6.2998	29	3.16437
	Significance using ANOVA	Between groups	0.0690	
	Linearity	0.0220		

7. Discussion

Basti is an internal route of drug administration and is one of the methods of *Snehana* [9], and it is clearly indicated that method of *Snehana* can be chosen according to the condition of the patient [10]. Hence whenever patient refuses oral fat consumption, *Anuvasana Basti* can be considered. This route is supported by the concept of *vicharana sneha* [4].

By logical interpretation of some references and analogies, symptoms of proper oleation after administration of *Anuvasana Basti* were studied. Even though *Anuvasana Basti* is administered in the rectum, it gets absorbed and spread throughout the body up to the subtle channels [11,12].

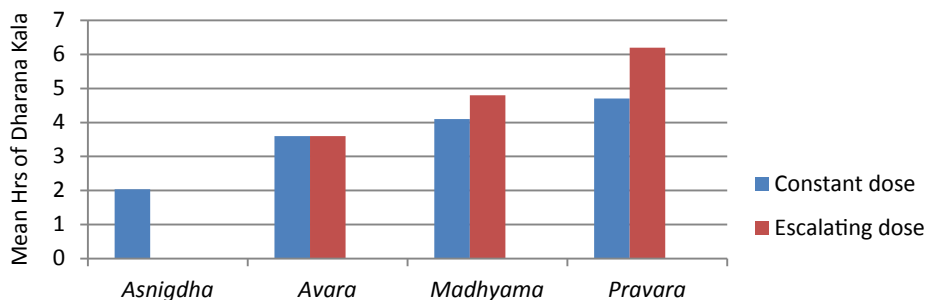
Vatanulomana is very first symptom quoted by *acharyas* in the list of symptoms of proper oleation. Practically also this symptom appeared on very first day of *Anuvasana Basti* in both groups. As it is the main symptom of proper administration of *Anuvasana Basti* irrespective of its dose; it had been seen predominantly in both groups [6]. *Snigdha* (unctuous) and *sara* (advancing) properties of sesame oil help the fecal matter, urine and flatulence to pass through with ease. *Vatanulomana* not only indicates the proper movement of *vata* but it indicates control of movement of *vata* in *koshtha* which helps *dosha* to move towards *koshtha* from *shakha* [13].

Angalaghava was seen almost same in both groups. As fecal matter, urine and flatulence pass through with ease, patient may find lightness of the body.

Asamhata varcha is a state of saturation of oil in faeces with *sara* (advancing) and *drava* (liquid) properties of oil. Eventhough in both groups loose stool was observed; in group B it was seen earlier than group A, i.e. on 3rd day in most of the patients. When oil is administered in larger quantity through anus, capacity of absorption of large intestine fails to absorb it completely, hence loose stool and excretion of oil through anus can be observed. In group A, 20 patients didn't show any change in consistency and frequency of faeces, but proper defecation without any strain was seen in these patients. It is again the symptom of proper *Anuvasana Basti* as the dose given was 120 ml constantly [6]. Loose and unctuous stool indicates *snehana* of *annavaha* and *purishavaha srotas* i.e. oleation of *koshtha* (gastrointestinal tract) in general.

Klama may occur due to obstruction in the way of perception of sense organs. This lassitude develops due to *guru* (heavy) and *manda* (slow spreading) properties of oil with large quantity especially in group B, and may be observed during digestion of oil. Maximum patients in group A were enthusiastic after administration of *Anuvasana Basti* which is considered as symptom of proper *Anuvasana* [6].

Interesting observation in the study was that, unctuousness of skin was increased in maximum patients in both groups. Potency of *Anuvasana Basti* is taken up and spread throughout the minutest channels by *apana vayu* to *prana vayu* through *samana*, *udana* and *vyana vayu* (types of *vata*) [14]. *Sushruta* quotes time required for action of enema. On 4th day *Basti* reaches up to *rasa dhatu* and on 5th day up to *mamsa dhatu* [15]. It indicates that oil can reach up to skin within 5 days as skin is *upadhatu* of *mamsa* and site of manifestation of *rasa*. *Sushruta* supports this phenomenon by explaining how the nourishment reaches up to leaves, flowers and fruits of the tree even though it is irrigated at its roots [11]. *Snigdha* (unctuous), *picchila* (smearing) and *mridu* (soft) properties of sesame oil enhance the same qualities in the body hence unctuousness along with softness and smoothness of skin can be seen [16]. *Twak prasadakara* i.e. qualities of nourishing and nurturing of skin of sesame oil are also responsible for the lustre and unctuousness of the skin [4].

**Fig. 1.** Distribution of patients according to grades of *samyak snigdha lakshana* within *dharana kala* of *Anuvasana Basti*.

In this study, some patients from group B, showed *urdhva utklesha* with symptoms like nauseating sensation, stickiness of throat, heaviness of head. Two patients were observed with *netra mala vriddhi* i.e. increased discharge from eyes. This shows that effect of *Basti* is not restricted to ano-rectal region locally. In this context, *Chakrapani* states that, *Basti* reaches up to duodenum [17]. It should be however noted that the extent of vitiated *dosha*, season and other elements in the body also play the major role in the process of *utklesha*. According to *Sushruta*, *utklesha* of *dosha* and *agnivadha* i.e. total destruction of gastric fire or digestive capacity are manifested if *Anuvasana Basti* is administered continuously [18]. In this case, due to administration of oil in large quantity in group B; *utklesha* of *dosha* may took place. But in this study, *Anuvasana Basti* was administered maximum for seven days in both groups that is indicated as the limit of internal administration of fat orally [4]. Hence the symptom *agnivadha* might not be observed in this study.

Further, we observed that the duration required for achieving symptoms of proper oleation after administration of *Anuvasana Basti* was similar to the textual reference of *Snehapana* [4]. In group A, the symptoms of oleation appeared on 6th day of *Anuvasana* in the patients of *mridu koshttha* where as for *madhyama* and *krura koshttha*, symptoms appeared on 7th day.

In group B, patients with *mridu koshttha* started showing symptoms of oleation on 4th day. Patients having *madhyama koshttha* also started showing symptoms earlier i.e. on 5th and 6th day and patients of *krura koshttha* showed *snigdhat* on 6th day onwards. Higher grade of oleation was achieved in most of the patients with *mridu koshttha* in group B. *Mridu koshttha* has a dominance of *pitta* with *sara* i.e. property that promotes advancement of *dosha* and *snigdha* i.e. unctuous property. It might be the cause that *vatanulomana* and *asamhata varcha* appeared earlier in the patients of *mridu koshttha*.

It was observed that as *dharana kala* increases, grades of proper oleation also get increased (Fig. 1). *Charaka* clearly mentions that, if *Anuvasana Basti* doesn't retain inside the rectum; then it is unable to provide proper oleation to large intestine and may not avail expected results [19]. *Chakradatta* has explained the gradual escalation in the dose of *Anuvasana Basti*, to increase the retention period [20], and we observed the same i.e. retention period was more in group B.

This study, has some limitations in terms of two symptoms of proper oleation viz *agnidipti* (increase in digestive capacity) and *snigdha varcha* (unctuous stool). Oral administration of fat is done on an empty stomach and *jatharagni* digests the fat. Whereas *Anuvasana* has to be administered after having food; and *agni* has to digest oil along with food. In *Snehapana*, *jatharagni* is considered whereas for *Anuvasana Basti*, '*shoshyamana vanhi*' (a virtue of *jatharagni* responsible for absorption) is important even though it is supported and powered by *jatharagni* itself [21].

In the process of *Snehapana*, after certain period, stool becomes unctuous due to saturation of fat in *koshttha*. Whenever defecation takes place after administration of oil enema, patient could not differentiate between unctuousness of stool and stool along with oil.

Proper oleation of the body, causes movement of *dosha* towards *koshttha* which in turn causes proper expulsion of *dosha* without having vitiation of *vata*. Even though, in both groups *antiki* and *vaigiki shuddhi* of *Virechana* and *Vamana* were encouraging; it was more in the patients those were on escalating doses.

Recent research suggested that rectal absorption can prove the good alternative route of drug administration as it provides partial avoidance of first portal pass metabolism. It has been demonstrated that the rectal route is more efficient than even intravenous route [22,23].

In the nutshell, we can suggest that the symptoms of proper oleation through *Anuvasana Basti* can be perceived without any

adverse effects or symptoms of *asnigdha* (incomplete oleation) [4] or *atisnigdha* (excessive oleation) [4]. Even though *Acchapan* (having only fat) through oral route should be the first choice for *Snehapana* [4]; *Anuvasana Basti* can be considered as an alternative for the patients who may deprive the benefits of *Shodhana* only because of aversion of *Snehapana*.

There is a lot of scope for further studies with different doses schedules of *Anuvasana Basti* with various *siddha taila* or *ghrita* medicated oil or ghee with large sample size. A small sample size is one of the limitations of this study.

8. Conclusion

Samyak snigdha lakshana, can be achieved after administration of *Anuvasana Basti*, especially after administration of its escalating dose. Hence can definitely be used as an alternative for *Snehapana* prior to *Shodhana*, i.e. *Vamana* and *Virechana* without any adverse effect. Patients with *mridu*, *madhyama* and *krura koshttha* required minimum, medium and maximum dose and duration respectively, for proper oleation as escalating dose of *Anuvasana Basti*. *Shuddhi Lakshana* of *Vamana* and *Virechana* in terms of *vaigiki* and *antiki* were very promising. *Madhyama* to *uttama shuddhi* of *Vamana* and *Virechana* can be observed, if *Anuvasana Basti* is administered in escalating dose.

Conflict of interest

Murchita Tila Taila is a licensed product of Agasti Pharmaceuticals, Pune which was used for the research work. Even though the author (PK) is a relative of the proprietor of Agasti Pharmaceuticals; there is no financial interest.

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