

A Comparative Analysis of *Balaguduchyadi* and *Erandamooladi Niruha Basti*: Insights and Outcomes

Research Article

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Abstract

Background: *Ayurveda* employs *Shodhana Karma* and *Shamana Karma* to preserve health and treat ailments. *Niruha Basti*, a purification therapy under *Shodhana Karma*, is particularly effective for *Vata*-predominant disorders. **Objective:** This retrospective study evaluates the immediate outcomes of *Balaguduchyadi Basti* (BNB) and *Erandamooladi Basti* (ENB) in achieving *Samyaka Niruha Lakshana*. It focuses on dosage ranges, voiding patterns, and retention period (RP). **Materials and methods:** Data from forty Assessment formats for *Basti karma* of patients receiving *Niruha Basti* for various medical conditions were analyzed. Patients were categorized into two groups: Group A consisted of 20 patients (both male and female) received BNB, and Group B consisted of 20 patients (both male and female) received ENB. The therapeutic outcomes were assessed based on dosage, RP, and scores for *Samyaka Niruha Lakshana*. **Results:** BNB achieved the highest average score for *Samyaka Niruha Lakshana* at a dosage range of 601–650 ml with an average RP of 14.9 minutes. ENB attained optimal scores at a slightly lower dosage range of 551–600 ml with an average RP of 5.9 minutes. The lowest scores for BNB were observed at 401–450 ml (average RP: 8.5 minutes), while ENB showed the lowest scores at 501–550 ml (average RP: 6.3 minutes). **Conclusion:** BNB and ENB exhibit distinct dosage and RP profiles, with BNB demonstrating a higher RP and optimal outcomes at higher dosages. These findings contribute to dosage standardization in *Niruha Basti* therapies.

Keywords: *Basti*, *Ardha chikitsa*, *Ayurveda*, *Samyaka Niruha Lakshana*, Medicated enema.

Introduction

The primary objective of *Ayurveda* is twofold: to preserve the health of individuals and to alleviate the ailments of those who are unwell (1). In *Ayurveda*, treatments are categorized into two main types: *Shodhana Karma* and *Shaman Karma*. *Shodhana Karma* encompasses purification therapies aimed at detoxification and elimination of toxins from the body. This category includes five main procedures: *Niruha*, *Vamana*, *Virechana*, *Shirovirechana*, and *asravisruti* (2). Among these, *Basti Karma* is a therapeutic procedure applicable to all *Vata*-predominant disorders. According to *Acharya Charaka*, the action of *Basti* can be likened to watering plants at their roots. Similar to how watering the roots sustains the entire plant, *Basti*, administered as a medicated enema via the rectum and colon, penetrates the entire body, effectively treating *Vata Dosha*-related ailments (3).

Vata, inherently mobile, governs the movement of *Pitta* and *Kapha Doshas* within the body, leading to various diseases affecting different anatomical regions such as *Shakhagata* (limbs), *Kosthagata* (abdomen),

Marmagata (vital organs), *Urdhwagata* (upper body), *Adhogata* (lower body), or *Sarva Avayavagata* (entire body) (4). *Basti Karma* emerges as the primary treatment modality for pacifying *Vata Dosha*, effectively targeting and eliminating vitiated *Doshas* from their sites of accumulation. Hence, some *Acharyas* have mentioned that *Basti Karma* as *Ardhachikitsa* (5).

Two commonly used formulations for *Niruha Basti* were modified *Balaguduchyadi Basti* (6) and modified *Erandamooladi Basti* (7), each possessing unique properties and therapeutic potentials. Due to religious and cultural considerations, the classical content of the *Basti* formulations was modified; *gomutra* (cow urine) was not used in *Erandamooladi Basti*, and *mamsarasa* (meat broth) was omitted from *Balaguduchyadi Basti*. Hence, the term "modified" was used to describe these modified formulations. This paper presents the outcomes observed after administering these modified *Niruha Basti* to patients at the Department of Panchakarma, AUTCH, Karol Bagh, Delhi. The objective of this retrospective study was to evaluate the dosage range, voiding patterns, retention period, and the average score for *Samyaka Niruha Lakshanas*.

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Materials and Methods

This study retrospectively examines the Assessment formats for *Basti Karma*, of patients who underwent *Basti* with *Erandamooladi* and

Balaguduchyadi formulations at the Department of Panchakarma, AUTCH, Delhi.

Source of Data and Development of Assessment format for Basti karma at AUTCH, New Delhi

The data source comprises the Inpatient Department Assessment formats for *Basti Karma*, available at the Department of Panchakarma, AUTCH, Karol Bagh, New Delhi. This format was developed by the Department of Panchakarma at AUTCH to record patient details for each *Basti* therapy session systematically. The copyright for this format, registered under L-150055/2024 on 27/6/2024, includes comprehensive information on patient demographics, *Atura Siddhta*, *Basti Karma* procedure specifics, and observations related to *Samyaka*, *Ayoga*, *Atyoga Lakshanas*, and *Upadrava*.

Selection of Assessment format for Basti karma

This pilot study includes data taken from completed Assessment format for *Basti karma* of patients who received *Kala Basti* with either *Balaguduchyadi* or *Erandamooladi Niruha Basti* formulations. Forty random Assessment format for *Basti karma* were retrospectively analyzed. The formats indicated that patients underwent prior evaluation for the suitability of *Basti* in the Panchakarma department. These 40 assessment formats of patients with various medical conditions, were categorized into two groups. Group A consisted of 20 patients (both male and female) who underwent *Balaguduchyadi Basti*, while Group B comprised 20 patients (both male and female) who received *Erandamooladi Basti*.

Duration of study

All the collected Assessment formats of the patients span a 12-month period, from May 2022 to May 2023.

Analysis of data

This study utilized statistical methods such as simple averaging, percentage analysis, Standard Deviation (SD), and Confidence Interval (CI) for data analysis.

Standard Operative Procedure (SOP) for Niruha Basti Administration and Preparation Basti Administration Protocol

Both kinds of *Niruha Basti* were administered in doses ranging from 350ml to 650ml in increasing dose patterns according to their retention period. *Niruha Basti* was administered on an empty stomach (Abhukta) (8), while *Anuvasan Basti* was given immediately after meals (Adrapaninam bhojan) (9). In line with the *Kala Basti* regimen, *Anuvasana Basti* was scheduled for days 1, 3, 5, 7, 9, 11, 13, 14, and 15, utilizing different oils tailored to the patient's condition. Meanwhile, *Niruha Basti* (decoction-based enema) was administered on days 2, 4, 6, 8, 10, and 12 (10).

SOP for preparation of Niruha Basti (NB)

Table 1 provides the SOP for both *Erandamooladi Niruha Basti* (ENB) and *Balaguduchyadi Niruha Basti* (BNB).

Table 1: SOP for preparation of NB

SOP for BNB (Group A)	SOP for ENB (Group B)
The ingredients were added in the following specific sequence to ensure proper blending and effectiveness:-	The ingredients were added in the following specific sequence to ensure proper blending and effectiveness:-
1) Madhu (Honey) = 120 ml	1) Madhu (Honey) = 120 ml
2) Saindhav (Rock salt) = 10 gm	2) Saindhav (Rock salt) = 10 gm
3) Bala taila + Ghrita = 240 ml	3) Bala taila = 240 ml
4) Putiyavanyadi kalka = 80 gm	4) Putiyavanyadi kalka = 80 gm
5) Balaguduchyadi kwatha = 400 ml	5) Erandamooladi kwatha = 400 ml
6) Guda (Jaggery) = 20 gm	
*Mansarasa - not included in the composition	*Gomutra - not included in the composition

SOP for Method of Administration

The patient was positioned in the left lateral position with the right leg folded. Lukewarm *Basti dravya* was administered via an enema can with a rubber catheter inserted 4 *angula* into the rectum (11).

SOP for Format Filling

Table 2 summarizes the assessment criteria used to evaluate the *Samyaka Niruha Lakshana* in the Assessment formats for *Basti karma*, along with the scoring system implemented in the study.

Table 2: Assessment criteria to evaluate the Samyaka Niruha Lakshana (12)

Lakshana	Interpretation	Scoring System
<i>Prasrushta vitkata-mutrata-vata</i>	Spontaneous excretion of stools, urine, and flatus	1 = Perceived clearly, 0 = Not clear, doubtful, or not perceived.
<i>Ruchi vridhhi</i>	Increase in appreciation of the taste of food	1 = Perceived clearly, 0 = Not clear, doubtful, or not perceived.
<i>Agni vridhhi</i>	Increase in appetite for food along with improvement in <i>jaranashakti</i> (proper digestion of food)	1 = Perceived clearly, 0 = Not clear, doubtful, or not perceived.
<i>Ashaya laghuta</i>	Lightness in the organs like <i>pakwashaya</i> (abdomen)	1 = Perceived clearly, 0 = Not clear, doubtful, or not perceived.

<i>Roga upashamana</i>	Relief in symptoms of the disease for which <i>Basti</i> was administered	1 = Perceived clearly, 0 = Not clear, doubtful, or not perceived.
<i>Prakrutishtha</i>	Feeling healthy as before	1 = Perceived clearly, 0 = Not clear, doubtful, or not perceived.
<i>Bala vridhhi</i>	Better strength than before	1 = Perceived clearly, 0 = Not clear, doubtful, or not perceived.

Observations

Patient Characteristics: The patients documented in the formats were between 18 and 70 years old. The formats revealed diagnoses of various types of *vata*-predominant disorders, such as *katigata vata*, *gridhrasi*, *sandhigata vata*, *vatarakta*, *amavata*, and *manya gata vata*. None of the formats indicated a past history of uncontrolled hypertension/diabetes among the patients. No instances of *Ayoga* or *Atyoga* were observed in any patient across both groups throughout the entire course of treatment.

Results

The study encompassed 240 *Niruha Basti* administrations across 40 patients, with each patient receiving 6 *Niruha Basti* treatments. This distribution resulted in two groups: Group A (BNB), with 120 *Basti* administrations, and Group B (ENB), also with 120 *Basti* administrations. The subsequent analysis was performed based on these total *Basti* counts.

Minimum Retention Period (RP) Analysis (irrespective of dose)

The Minimum Retention Period (RP) of BNB and ENB were evaluated among the patients, as presented in Fig 1. It illustrates the distribution of patients based on their RP. Approximately 55% of patients receiving BNB had RP of less than 5 minutes, while 35% exhibited RP ranging from 5 to 10 minutes. Additionally, 10% of patients demonstrated RP between 10 to 15 minutes. Contrastingly, among patients receiving ENB, approximately 50% exhibited RP of less than 5 minutes, with 45% showing RP between 5 to 10 minutes. Only a minor proportion, 5%, displayed RP falling within the range of 10 to 15 minutes.

Maximum Retention Period (RP) Analysis (irrespective of dose)

Fig 2 presents the Maximum RP observed in both groups. For BNB, 45% of patients had RP between 5 and 15 minutes, 35% showed RP between 15 to 30 minutes, and 20% exceeded 30 minutes. Similarly, ENB Maximum RP was analyzed. Notably, 75% of patients had RP between 5 to 15 minutes, 10% between 15 to 30 minutes, and 15% exceeded 30 minutes. ENB has a lower RP than BNB with the same volume of *Basti*. Apart from this, RP was 5 to 15 minutes in 75% in ENB for the same minimum dose, which indicates that ENB is somewhat *Tikshna guna*.

Maximum Dose and RP Comparison

Eight patients taking BNB reached a maximum dose of 650 ml, with an average RP of 9.5 minutes. Ten patients taking ENB reached a maximum dose of 650 ml, with an average RP of 7.8 minutes.

Minimum Dose and RP Comparison

Eight patients in the BNB group received a minimum dose of 350 ml with an average RP of 12.6 minutes, while five patients in the ENB group received a minimum dose of 350 ml with an average RP of 4.9 minutes.

Average Dose and RP Comparison

The average dose of BNB throughout the course is 495.5 ml, with an average RP of 10.2 minutes, while for ENB, the average dose is 512 ml, with an average RP of 8.3 minutes. The average dose is high in ENB compared to BNB, which may be due to the addition of *ghrita*, which has *sara guna*.

The average dose of BNB was 495.5 ml, with a standard deviation (SD) of 74.65 ml and a confidence interval (CI) ranging from 462.76 to 528.23 ml. The average RP was 10.21 minutes, with an SD of 6.3 minutes and a CI ranging from 7.4 to 12.9 minutes. The average dose of ENB was 512 ml, with an SD of 72.19 ml and a CI ranging from 480.3 to 543.6 ml. The average RP was 8.3 minutes, with an SD of 5.17 minutes and a CI ranging from 6.07 to 10.59 minutes.

Frequency of Voiding Comparison

In comparing the frequency of voiding between BNB and ENB, notable differences emerge. Among patients receiving BNB, 50% experienced one voiding episode, while 35% reported two voiding episodes, and 15% had more than two voiding episodes. Conversely, after ENB administration, 60% of patients had one voiding episode, 15% reported two voiding episodes, and 25% experienced more than two voiding episodes. [Table 2]

Percentage of Patients Achieving *Samyaka Niruha Lakshana* across six Consecutive BNB

Table 4 shows post BNB, 100% of patients achieved *Prasrushta vitkata-mutrata-samirana* after the first *Niruha Basti* (NB) and subsequent administrations. Regarding *Ruchi Vridhi*, 60% of patients experienced it after the first NB itself, 25% after the second NB, 5% after the third NB, and 10% after the fifth BNB. *Agni vridhi* was observed in 50% of patients following the first NB, but 40% observed it after the second NB, and so on. *Ashaya laghuta* was noted in 90% of patients after the first NB only and 10% after the second NB. *Roga upshanti* was reported in 10% of patients after the first NB, 5% after the second NB, 10% after 3rd NB, 15% post 4th NB and 5% after the sixth NB and rest 25% did not show *this lakshana*. *Balavridhi* was observed in 5% of patients after the first NB, 10% after the second NB, 20% after the third NB, 10% post 4th NB, 5% post 5th NB, and 30% post 6th BNB and rest 20% did not show *this lakshana*.

Percentage of Patients Achieving *Samyaka Niruha Lakshana* across six Consecutive ENB

Post ENB, 100% of patients achieved *Prasrushta vitkata-mutrata-samirana* after the first NB and subsequent administrations. Regarding *Ruchi vridhi*, 65% of patients experienced it after the first NB, 20% after the second NB, 5% after the fifth NB, 5% after the sixth NB and rest 5% did not show this *lakshana*. *Agni vridhi* was observed in 60% of patients after the first NB, but 20% observed it after the second NB, and rest 5% did not show this *lakshana*. *Ashaya laghuta* was noted in 80% of patients after the first NB, 15% after the second NB, and 5% after the fifth NB. *Roga upshanti* was reported in 20% of patients after the first NB, 25% after the second NB, and varied thereafter, with 25% after the sixth NB and rest 20% did not show this *lakshana*. *Balavridhi* was observed after the first NB in 5% of patients, after the sixth ENB in 30% of patients and rest 20% did not show this *lakshana*. (Table 3)

Comparison of Average RP between BNB and ENB Across Different Dose Ranges

The comparison of Average RP between BNB and ENB across different dose ranges is presented in Table 4. For doses ranging from 350 to 400 ml, BNB had RP of 9 minutes compared to 13 minutes for ENB. In the dose range of 401 to 450 ml, BNB exhibited RP of 8.5 minutes, while ENB had RP of 6.4 minutes. Similarly, for doses ranging from 451 to 500 ml, 501 to 550 ml, and 551 to 600 ml, BNB showed RP of 9.5 minutes, 8 minutes, and 8.4 minutes, respectively, whereas ENB showed RP of 8.5 minutes, 6.3 minutes, and 5.9 minutes, respectively. Notably, in the dose range of 601 to 650 ml, BNB exhibited a longer RP of 14.9 minutes compared to 9.4 minutes for ENB.

Comparison of Average Score of *Samyaka Niruha Lakshana* between BNB and ENB Across Different Dose Ranges:

The comparison of Average *Lakshana* between BNB and ENB across different dose ranges is presented in Fig 3. For doses ranging from 350 to 400 ml, *Balaguduchyadi Basti* had a *Lakshan* of 5.3 compared to 3.3 for *Erandamuladi Basti*. In the dose range of 401 to 450 ml, *Balaguduchyadi Basti* exhibited a *Lakshana* of 3.1, while *Erandamuladi Basti* had a *Lakshana* of 4.5. Similarly, for doses ranging from 451 to 500 ml, 501 to 550 ml, and 551 to 600 ml, BNB showed *Lakshana* of 4.6, 4.8, and 4.6 respectively, whereas ENB showed *Lakshana* of 4.1, 3.1, and 4.6 respectively. Notably, in the 601 to 650 ml dose range, BNB exhibited a maximum *lakshana* of 5.6 compared to 4.4 for ENB.

Maximum Average Score of *Samyaka Niruha Lakshana*

The maximum Average Score of *Samyaka Niruha Lakshana* for BNB was 5.6, achieved with a dosage between 601 and 650 ml, along with an average retention time (RT) of 14.9 minutes. In contrast, the maximum Average Score of *Samyaka Niruha Lakshana*

for ENB was 4.6, observed at a slightly lower dosage range of 551-600 ml, along with an average RT of 5.9 minutes. (Fig 3 and Table 4)

Minimum Average Score of *Samyaka Niruha Lakshana*

The minimum Average Score of *Samyaka Niruha Lakshana* for BNB was 3.1, noted at a dosage range of 401-450 ml, along with an average RT of 8.5 minutes. For ENB, the minimum Average Score of *Samyaka Niruha Lakshana* was 3.1, seen at a dosage range of 501-550 ml, along with an average RT of 6.3 minutes. (Fig 3 and Table 4)

Discussion

The analysis of average scores for *Samyaka Niruha Lakshana* between BNB and ENB reveals distinct trends. BNB achieved higher average scores as compared to ENB. The average score for BNB was maximized, i.e., 5.6 within the 601-650 ml dosage range, and also, at this dose, average retention was maximum i.e. 14.9 minute. In contrast, ENB showed variability in its average scores across different doses, with peak performance, i.e., 4.6, observed at a slightly lower dosage range of 551-600 ml, and at this dose, average retention was minimum i.e. 5.9 minute. This study indicates that for BNB, maximum average *lakshana* was achieved at maximum average retention, while for ENB, maximum average *lakshana* was achieved at minimum average retention.

The analysis of *Samyaka Niruha Lakshana* between BNB and ENB reveals distinct patterns. Both groups consistently exhibited positive responses in the achievement of symptoms like *Ruchi vridhi* (enhanced appetite), *Agni vridhi* (improved digestive fire), and *Ashaya laghuta* (lightness), particularly in initial administrations. However, the achievement of *Prakrutisthapna*, indicating restoration of constitutional balance, was not observed in either group, suggesting a need for a longer-term assessment to observe this outcome. Additionally, certain symptoms, such as *Balavridhi* (strength enhancement), displayed gradual improvement over subsequent administrations, highlighting differential timelines for therapeutic effects between the two formulations. Some *lakshana* are achieved in the short term (like *Prasrushta-vitkata-mutrata-samirana*, *ruchivridhi*, *agnivridhi*, *ashayalaghuta*) as immediate outcomes observed after the first or second NB, while others manifest in the long term (like *Rogaupshanti*, *Prakrutisthapna* and *Balavridhi*) necessitating sustained treatment and keen observation over time. It emphasizes the need for both immediate and long-term perspectives in treatment planning.

The normal retention period for *Niruha Basti*, as cited in *Samhita*, was 48 minutes (13). However, in this pilot study, *Niruha Basti* was administered to 40 patients on various occasions, resulting in a range of different retention periods. Across all dose ranges, BNB consistently exhibited longer average RP than ENB. For instance, in the 601-650 ml dose range, the average RP for BNB was notably higher at 14.9 minutes, whereas

ENB had an average RP of 9.4 minutes. Due to the *mridu* and *rasayana guna* in BNB, its RP was longer than that of ENB, whose RP was lower since *Tikshna guna* was present in its constituents.

Classical *Ayurvedic* texts prescribe a standard dose of 960 ml (14). However, the highest dosage administered for both types of Basti was 650 ml. The mean dosage for *Balaguduchyadi Basti* across 20 patients was 495.5 ml, and for *Erandamuladi Basti*, it was 512 ml. The administered doses for both *Balaguduchyadi* and *Erandamuladi Basti* were significantly lower than the classical recommendation. The average doses were approximately 51.6% and 53.3% of the traditional dose, respectively. The maximum dose given, which is 650 ml, still falls short of the classical dose by about 32.3%. This discrepancy may suggest a cautious approach in contemporary practice, possibly due to patient tolerance, safety considerations, or modern adaptations of traditional protocols. Chakradutta's concept of *Ardha Matrik Niruha Basti*, which advocates for using half the traditional dosage for certain conditions, may also be relevant to current practices.

This variability underscores the influence of various factors, such as: -

a) **Formulation Factors:** The differences in retention periods could be attributed to differences in formulation composition, including the types and proportions of herbal ingredients, excipients, and vehicle substances used in BNB and ENB. These formulation factors influence the solubility, viscosity, and absorption kinetics of the *Basti* preparations.

b) **Patient-specific Responses:** Individual patient factors such as gastrointestinal transit time, mucosal permeability, and metabolic rate may also influence the retention and absorption of the *Basti* formulations. Variations in *Prakriti* of patient, *koshtha*, and *agni* could contribute to the observed differences in retention periods between BNB and ENB.

c) **Clinical Considerations:** The findings underscore the importance of tailoring *Basti* formulations to individual patient needs and conditions. Clinicians may need to adjust dosage regimens and administration schedules based on factors such as patient age, health status, the status of *koshtha*, status of *Agni* and dosing requirements to optimize therapeutic outcomes.

In summary, the analysis of retention periods, average doses highlight differences in the BNB and ENB, suggesting potential implications for their therapeutic utility in *Ayurvedic* practice. Further

research is warranted to elucidate the underlying mechanisms driving these differences and to optimize *Basti* formulations for enhanced therapeutic outcomes.

Conclusion

This study has been conducted with formulations that have been modified according to patient-specific responses and therapeutic needs. The analysis of retention periods, *Samyaka Niruha lakshana*, frequency of voiding, and average dose underscores the importance of considering formulation differences and patient-specific factors in optimizing *Basti* therapy for enhanced therapeutic outcomes. Further empirical research with expanded sample size and longer follow-ups is imperative to elucidate the specific mechanisms that account for these discrepancies and refine the formulations of *Basti* for superior therapeutic outcomes.

Figure 1: Comparison Minimum retention period: BNB vs. ENB

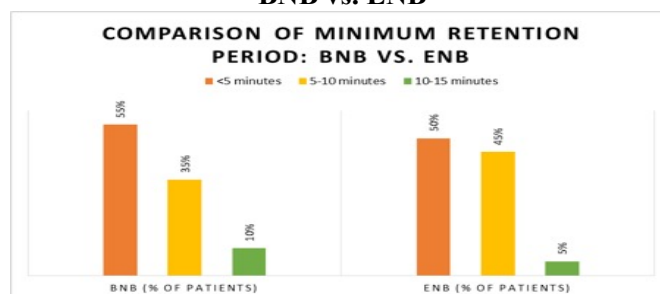


Figure 2: Comparison of Maximum retention period: BNB vs. ENB

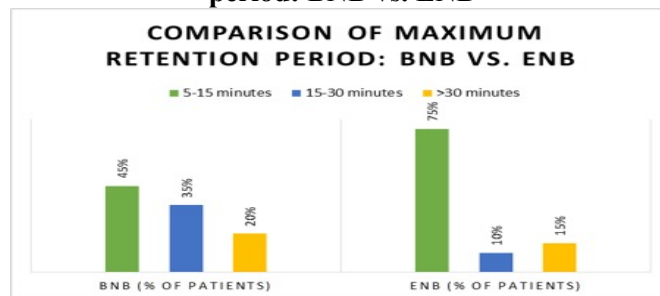


Table 2: Voiding frequency Comparison: BNB vs. ENB

Frequency of	BNB (% of	ENB (% of
1	50%	60%
2	35%	15%
>2	15%	25%

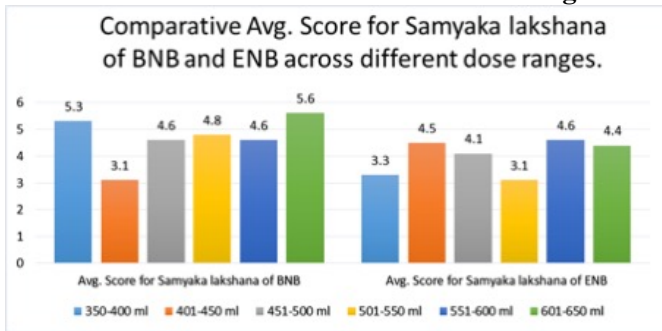
Table 3: Analysis of the *Samyaka Lakshana of Niruha*: BNB vs. ENB

Symptoms	1st BNB	2nd	3rd	4th	5th	6th	1st ENB	2nd	3rd	4th	5th	6th
<i>Prasrushta-vitkata-mutrata-samirana</i>	100%						100%					
<i>Ruchi vridhi</i>	60%	25%	5%		10%		65%	20%			5%	5%
<i>Agnivridhi</i>	50%	40%	5%		5%		60%	20%		5%	5%	5%
<i>Ashayalaghuta</i>	90%	10%					80%	15%			5%	
<i>Rogaupshanti</i>	10%	5%	10%	15%	30%	5%	20%	25%	10%	10%	5%	25%
<i>Prakrutisthapana</i>	-	-	-	-	-	-	-	-	-	-	-	-
<i>Balavridhi</i>	5%	10%	20%	10%	5%	30%	5%	10%	15%	5%	15%	30%

Table 4: Retention Period of BNB and ENB across different dose ranges

Dose range (in ml)	Number of BNB patients	Retention of BNB (min)	Number of ENB patients	Retention of ENB (min)
350-400 ml	30	9	25	13
401-450 ml	13	8.5	12	6.4
451-500 ml	31	9.5	23	8.5
501-550 ml	17	8	16	6.3
551-600 ml	15	8.4	25	5.9
601-650 ml	14	14.9	19	9.4

Figure 3: Average score for Samyaka lakshana of BNB and ENB across different dose ranges.



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