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Study the Efficacy of Duhsparsyadi Leha and Kantakari Avaleha in the Management of Vataja Kasa

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Abstract---Background: *Kasa* is an independent disease of *Pranvaha Strotas*. *Kasa* is an independent disease and it is not life threatening but it interferes with the quality of routine activity of an individual. Prevalence of *Vataja kasa* is remarkable. *Vataja Kasa* is one of the type of *Shuskakasa* dominated by *Vata* and *Pran Vayu Dusthi*. Congested *Vayu* causes the production of abnormal sound, which may be dry or productive. Aim - Comparative efficacy of *Duhsparsyadi Leha* and *Kantakari Avaleha* in *Vataja Kasa*. Material and method -In this study, 40 patients of *Vataja Kasa* will randomly divided into two groups (20 in each) having typical signs and symptoms of *Vataja Kasa* were treated. In Group A (Experimental)-10 gms *Duhsparsyadi Leha* will administered twice a day with lukewarm water before meal and Group B (Control) will given 10 gms *Kantakari Avaleha* twice a day with lukewarm water before meal for 15 days. Subjective criteria like *Kasavega*, *Uraha-parshwashool*, *Shirshool*, *Swarbheda* TLC (Total Leukocyte Count), Neutrophils, and Absolute Eosinophil Count (AEC) are examples of laboratory measures were assessed before and after treatment. Assessment will be recorded in every week (7th day and 15th day). Result – After treatment, there was a significant improvement in all indicators.

Keywords---duhsparsyadi avaleha, kantakari avaleha, kasavega, management, vataja kasa.

Introduction

Respiratory illness is one of the most important and difficult sectors, and *Kasa* is one of them. Breathing, which involves the both to and from passage of air provide the *Pranavaha Srotas*, is a common occurrence and a crucial indicator of life, and its regularity indicates good health. Its abnormality causes sickness, and its absence causes an individual's death. This one-of-a-kind sig a life sign is afflicted by means of a situation known as *Kasa*, which is caused by the exposure of the respiratory system to the external environment on a constant basis, which has been affected by industrialization and inhabitants outburst, as well as the influence of modern life style, which causes the individual to become agitated in their daily activities.

Kasa is an illness that affects people of different ages all over the world. *Kasa* is a crippling ailment of the *Pranavaha Srotas* that, if left untreated, can cause horrible illness such as Asthma, Cachexia, Tuberculosis, Urakshata (chest injury), and Rakttapitta are all diseases that affect people (bleeding like haemoptysis) [1]. *Kasa* might manifest as a separate disease, a symptom, or a complication of another condition. *Kasa* is divided into two types: *Ardra Kasa* and *Shushka Kasa*. *Vataja Kasa* is a *Shushka Kasa* with *Vata* and *Prana Vayu Dushti* dominating.

Kasa Vega is related with *Shushkata Urah-parshwashool*, *Shirshool*, *Swarbheda*, and *Daurbalya* in *Pranvaha Strotodusti Janita Vyadhi*. *Kasa* is derived from the Sanskrit word 'Kas'i.e. Gati. The vitiated *Prana vayu*, coupled with *Udana vayu*, becomes worsened when combined with other *Doshas*, and is abruptly released with a "coughing sound" like a broken bronze vessel, known as *Kasa*. *Kasa* is listed in *Charak samhita* as a separate sickness. *Vataja Kasa* is a form of *Shushka Kasa* characterised by *Vata* and *Pran Vayu Dusthi* [2].

Vataja Kasa is the consequence of *Ruksha*, *Sheeta*, and *Kashaya Rasa Pradhana Ahar*, *Alpabhojana*, *Upavasa*, *Mala-mutra Vegavidharan*, *Ati-shrama*, *Ati-maithuna*, and other practices are the *Hetu* of *Vataja Kasa*. *Pranvayu*, according to *Sharangdhar*, acts as an *Amruta*, nourishing the body [3]. *Prakupita Kapha Dosha* obstructs the free movement of *Prana Vayu* in *Kantha* and *Uraha* during the pathogenesis of *Kasa* [4]. In India, the prevalence is 0.5 percent in *diverse situations* [5].

Kasa, often known as cough in science that is related to, is described in Ayurveda as a separate illness entity in addition to a symptom of something else ailments. *Vataja Kasa* can be applied to a wide range of current illness types. The *Vataja Kasa* and the disease entity Recurrent Upper Respiratory Tract Infections (RURTI) are essentially synonymous. Cough is the most common symptom of a URTI. It is a vital and intricate physiological defense mechanism that aids in respiratory system protection. Irritation and inflammation of the upper respiratory tract, which includes the throat and wind pipe, can cause it [6]. Due to the similarities of signs and symptoms, *Vataja Kasa* might be linked to dry cough. Minor discomfort in the throat might elicit the cough reflex when there is no mucus secretion in the bronchial tree. Coughing that does not because expectoration is known as a dry cough. Cough caused by URTI may be an

upsetting indication for empiric antitussive treatment in regular users [7]. Antitussives contain codeine or dextromethorphan, as well as antihistamines, decongestants, and expectorants are used to treat the symptoms [8]. The sixth most prevalent symptom for which patients seek medical attention is cough. *Kasa*, despite it appears simple, can progress to an illness with a poor diagnostic if neglected or mistreated [9]. Many herbomineral compositions for *Kasa* treatment were documented in Ayurveda. According to Ayurveda, a single medicine is insufficient to treat this ailment; hence palliative preparations are made with a mix of drugs. In the *Charak Samhita*, *Acharya Charak* emphasised the use of *Duhsparsyadi Leha* [9], while *Madhyam Khanda* in the *Sharangdhara Samhita* emphasized the use of *Kantakari Avaleha* [10] in *Vataja Kasa*. *Katu*, *Tikta*, *Kashaya Rasatmaka*, *Laghu* and *Ruksha Gunatmaka*, *Ushna Viryatmaka*, *Katu Vipaki*, and most of them are *Kapha-Vata Shamak* (contribute to *Samprapti*), *Deepen*, *Pachan*, *Vatanulomana*, *Kasahara*, and some have *Tridoshhara* qualities that play a big part in resolving *Kasa*.

Need of the study

As *Pranavaha Strotas* conveys *Prana*, any disease affecting this *Strotas* has to be treated with priority. *Vataja Kasa* is not life threatening, but it is becoming progressively uncomfortable and inconvenient for the individual in his daily activities. If ignored, it can lead to a slew of problems down the road. In recent years, there has been a remarkable increase in incidence related with the respiratory system due to exposure to both active and passive smoke, air pollution, and occupational dangers. [11]. There hasn't been a study comparing *Duhsparsyadi Avaleha* to *Kantakari Avaleha* in the management of *Vataja Kasa* yet. As a result, a clinical trial will be developed to demonstrate its efficacy in the treatment of *Vataja Kasa*.

Aim and Objectives

Aim: Comparative efficacy of *Duhsparsyadi Leha* and *Kantakari Avaleha* in *Vataja Kasa*.

Objectives

- To assess the efficacy of *Duhsparsyadi Leha* and *Kantakari Avaleha* in *Shushka Kasavega* associated with *Urah-parshwashool*, *Shirshool* and *Swarbheda*.
- To assess the efficacy of *Duhsparsyadi Leha* and *Kantakari Avaleha* in *Shushka Kasavega* not associated with *Urah-parshwashool*, *Shirshool* and *Swarbheda*.
- To assess the efficacy of *Duhsparsyadi Leha* and *Kantakari Avaleha* in AEC.
- To review the literature related to *Vataja Kasa*.

Materials and Methods

- Source of study: The Patients were selected from *Kayachikitsa* Outdoor and Indoor of MGACH & RC Salod (H) and from secondary camps and randomly categorized into 2 groups -Group A and Group B with 20 patients each for

the research. Before the clinical experiment, the patients gave their written consent. The trial drug *Duhsparsyadi Leha* and standard drug *Kantakari Avaleha* were prepared in the Dattatraya Rasashala, MGACH & RC, Salod(H) according to the traditional method of preparation of *Avaleha Kalpana*.

- Study Design: Double arm
- Study Type: Interventional study
- Sample size: 40

Inclusion criteria

- Patients between the age group of 20-60 years of either sex and *Sharirika Prakriti*.
- Patients with symptoms of *Shuska Kasa Vega* with duration 7 days to 1 month associated with or not associated with *Urah-Parshwashool, Shirshool* and *Swarbheda*.

Exclusion criteria

- *Shuska Kasa* associated with Fever
- Known case of Diabetes mellitus, Pulmonary TB, Pneumonia, Bronchial asthma, Pleurisy excluded.
- Pregnant and lactating women.

Selection of material: The raw material required for *Duhsparsyadi Leha* and *Kantakari Avaleha* were procured from pharmacy of MGACH & RC Wardha and verified from department of *Dravyaguna*.

Intervention

Table 1
Showing posology of both drugs

Criteria	Group A	Group B
Trial size	20	20
Intervention	<i>Duhsparsyadi Leha</i>	<i>Kantakari Avaleha</i>
Dosage	10 gm	10 gm
<i>Anupana</i>	Lukewarm water	Lukewarm water
Interval	15 days	15 days
Follow up	During the treatment period - After 7 th and 15 th day. After treatment-30 days	

Composition of material

Table 2
Showing Ingredients of *Duhsparsyadi Leha*

Sr. No.	Ingredients	Botanical Name	Part Used	Quantity
1	<i>Yavasa</i>	<i>Alhagi camelorum</i> Fisch	<i>Panchanga</i>	1part

2	<i>Pippali</i>	<i>Piper longum</i> Linn.	Fruit	1 part
3	<i>Musta</i>	<i>Cyperus rotundu</i> Linn.	Rhizome	1 part
4	<i>Bharangi</i>	<i>Clerodendrum serratum</i>	Root	1 part
5	<i>Karkatshringi</i>	<i>Pistacia intergerrima</i>	Galls	1 part
6	<i>Kachura</i>	<i>Hedychium spicatum</i>	Rhizome	1 part
7	<i>PuranGuda</i>	<i>Jaggery</i>	-	Q.S
8	<i>Tila Tail</i>	<i>Sesamum indicum</i>	Oil	Q.S

Preparation of medicine

Preparation of Duhsparshadi Leha –

First of all the authenticated drug *Yavasa* soaked in 8 litre plane water overnight. Then on next day add 16 parts of plane water in stainless steel container in soaked *Yavasa*, kept at a low temperature until it was shrunk to 1/8th of its original size. Continuous stirring was done during the heating process to aid evaporation and prevent material damage due to burning. The Kwath was filtered through double folded cotton fabric and collected in a separate vessel after achieving the desired volume decrease.

Filtered *Kwath* poured in End Runner Mill, then add rest of fine powdered drugs (*Bharangi*, *Karkatshringi*, *Pippali*, *Musta* and *Kachur*) in it and merge it together. As *Pippali* and *Kachur* are *Prakshep* and *Sugandhi Dravya*, moreover it is a water soluble substance, if added before, its active principle will gets evaporated, so added after *Kwath* is obtained. In obtained semisolid consistency, then added *Madhur Dravya* i.e. *Puran Guda* 4 Kg and again heated over *Mandagni* till *Tantu Paka*. As the water evaporates the viscosity of extract increase result in *Avaleha* formation. At last add *Tila Tail* is sufficient quantity in it and stirred well. Allow the *Avaleha* to slight cool down, add 0.5% Sodium benzoate and preserve in sterile packed in air tight container. So *Duhsparshadi Leha* was prepared.

Study Duration: 30 days.

Follow Up Period: On 0 day and 30th day (after treatment)

Investigations

- CBC (Before and After treatment)
- RBS (Before treatment)
- AEC counts (Before and After treatment)

Criteria for assessment

On days 0, 7, and 15, patients were evaluated for subjective and objective criteria.

Subjective criteria

Table 3
Showing gradation subjective parameters

1.	<i>Kasavega</i>	Present	Absent
2.	<i>Shirshool</i>	Present	Absent
3.	<i>Swarbheda</i>	Present	Absent

Urah-parshwashool

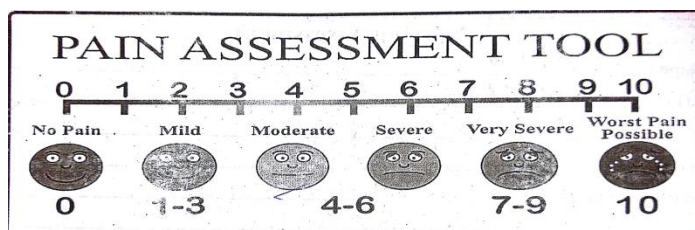


Figure 1. Pain assessment tool

Objective criteria

Before and after therapy, total leukocyte count (TLC), differential leukocyte count (DLC), and absolute eosinophil count (AEC) were measured.

Statistical analysis

Statistical analysis was accomplished through the use of descriptive and inferential statistics using 'chi' square test, student's paired and unpaired t-test, Wilcoxon Signed Rank Test and Mann Whitney U test and software used in the analysis were SPSS 24.0 version and Graph Pad Prism 7.0 version and $p < 0.05$ is considered as level of significance.

Observation and result

The age distribution of patients revealed that the majority of patients 17(42.5%) were in the 20-29 year age group, followed by 9 (22.5%) in the 50-59 year age group. As a result of this finding, it is clear that the disease affects people of all ages. There was no discernible difference in sex between the 16 (40%) male and 24 (60%) female patients in this study. Regarding occupation this study showed that the greater number of the subjects 15 (37.5%) were workers followed by 14 (35%) were students followed by 8 (20%) were housewife, 2 (5%) patients were nurse, 1 (2.5%) patient was retired person. The condition was shown to be more prevalent in individuals from the middle 27(67.5%) and lower 13(32.5%) socioeconomic classes in this study (32.5%). In terms of addiction, it was discovered that 17 (42.5%) of the patients had a habit of drinking tea, 2 (5%) had a tendency of drinking both alcohol and tea, and 3 (7.5%) had a habit of chewing tobacco and drinking tea. The majority of the patients in this study 28 (70 %) had inadequate personal hygiene. When it came to a personal history of any ailment, 20 (50 %) of patients had none. The bulk of the patients in this study 24 (60%) had a mixed diet, while the remaining 16 (40%) had a vegetarian diet. *Vishmagni* is found in the majority of patients 24 (60%), followed by *Tikshnagni* 11 (27.5%)

and *Mandagni* 5 (12.5%). The majority of the patients in this study 27 (67.5%) had interrupted sleep. *Mrudu Kosta* was found in the majority of patients 27 (67.5%), followed by *Krura Kosta* in 13 (32.5%). In this study, it was discovered that the majority of the patients 16 (40%) had a complaint that lasted 11-15 days, followed by 15 (37.5%) patients who had a complaint that lasted fewer than 10 days and 9 (22.5%) patients who had a complaint that lasted more than 15 days.

Statistically, in both groups, there was a significant improvement in reduction of all sign and symptoms and AEC after treatment. Comparison of both groups was statistically not significant after treatment that is both groups are equally efficient in decreasing subjective and objective parameters of *Vataja Kasa*. Regarding the comparison of overall improvement in both groups, In both groups, it was discovered that most of the patients showed Excellent (>70%) to Moderate Improvement (30%-70%).

Table 4
Comparison of *Kasavega* before and after treatment in two groups

	Day 0	Day 7	Day 15	Day 30
Group A				
Present	20(100%)	18(90%)	10(50%)	2(10%)
Absent	0(0%)	2(10%)	10(50%)	18(900%)
Comparison with Day 0				
x2-value	-	2.10	13.33	32.73
p-value	-	0.14,NS	0.0003,S	0.0001,S
Group B				
Present	20(100%)	17(85%)	8(40%)	2(10%)
Absent	0(0%)	3(15%)	12(60%)	18(90%)
Comparison with Day 0				
x2-value	-	3.24	17.14	32.73
p-value	-	0.07,NS	0.0001,S	0.0001,S
Comparison between group A and Group B				
x2-value	-	0.22	0.40	-
p-value	-	0.63,NS	0.52	-

Table 5
Comparison of *Shirshool* before and after treatment in two groups

	Day 0	Day 7	Day 15	Day 30
Group A				
Present	8(40%)	0(0%)	0(0%)	0(0%)
Absent	12(60%)	20(100%)	20(100%)	20(100%)
Comparison with Day 0				
x2-value	-	10	10	10
p-value	-	0.0001,S	0.0001,S	0.0001,S
Group B				
Present	11(55%)	3(15%)	0(0%)	0(0%)
Absent	9(45%)	17(85%)	20(100%)	20(100%)
Comparison with Day 0				

x2-value	-	7.03	15.17	15.17
p-value	-	0.008,S	0.0001,S	0.0001,S
Comparison between group A and Group B				
x2-value	0.90	3.24	-	-
p-value	0.34,NS	0.07,NS	-	-

Table 6
Comparison of *Swarbheda* before and after treatment in two groups

	Day 0	Day 7	Day 15	Day 30
Group A				
Present	9(45%)	3(15%)	1(5%)	0(0%)
Absent	11(55%)	17(85%)	19(95%)	20(100%)
Comparison with Day 0				
x2-value	-	4.28	8.53	11.61
p-value	-	0.038,S	0.003,S	0.0007,S
Group B				
Present	8(40%)	0(0%)	0(0%)	0(0%)
Absent	12(60%)	20(100%)	20(100%)	20(100%)
Comparison with Day 0				
x2-value	-	10.00	10.00	10.00
p-value	-	0.001,S	0.001,S	0.001,S
Comparison between group A and Group B				
x2-value	0.10	3.24	1.02	-
p-value	0.74,NS	0.07,NS	0.31,NS	-

Table 7
Comparison of *Urah-parshwashool* before and after treatment in two groups

	Day 0	Day 7	Day 15	Day 30
Group A				
Mean	1.15	0.65	0.15	0
SD	1.18	0.98	0.36	0
Comparison with Day 0				
z-value	-	3.24	4.59	4.35
p-value	-	0.004, S	0.0001, S	0.000, S
Group B				
Mean	1.16	0.75	0.36	0
SD	0.26	0.16	0.08	0
Comparison with Day 0				
z-value	-	2.66	3.47	3.45
p-value	-	0.015,S	0.003,S	0.003,S
Comparison between group A and Group B				
z-value	0.67	0.35	0.00	-
p-value	0.50,NS	0.72,NS	1.00,NS	-

Table 8
Comparison of TLC before and after treatment in two groups
Student's paired t test

		Mean	N	Std. Deviation	Std. Error Mean	Mean Difference	t-value
Group A	Before t/t	7615.00	20	1265.44	282.96	46±1226.23	0.16 p=0.87,NS
	After t/t	7660.00	20	801.57	179.23		
Group B	Before t/t	8515.00	20	1529.11	341.91	270±1198.28	1.00 p=0.32,NS
	After t/t	8245.00	20	1002.35	224.13		

Table 9
Comparison of Eosinophill before and after treatment in two groups
Student's paired t test

		Mean	N	Std. Deviation	Std. Error Mean	Mean Difference	t-value
Group A	Before t/t	3.10	20	0.71	0.16	0.65±0.67	4.33 p=0.0001,S
	After t/t	2.45	20	0.75	0.16		
Group B	Before t/t	2.80	20	0.52	0.11	0.60±0.50	5.33 p=0.0001,S
	After t/t	2.20	20	0.41	0.09		

Table 10
Comparison of Neutrophills before and after treatment in two groups
Student's paired t test

		Mean	N	Std. Deviation	Std. Error Mean	Mean Difference	t-value
Group A	Before t/t	53.45	20	9.74	2.17	1.80±0.40	2.00 p=0.059,NS
	After t/t	51.65	20	9.54	2.13		
Group B	Before t/t	61.00	20	10.07	2.25	3.80±6.41	2.65 p=0.016,S
	After t/t	57.20	20	10.85	2.42		

Table 11
Comparison of AEC before and after treatment in two groups
Student's paired t test

		Mean	N	Std. Deviation	Std. Error Mean	Mean Difference	t-value
Group A	Before t/t	233.30	20	60.23	13.46	47.90±23.24	9.21 p=0.0001,S
	After t/t	185.40	20	50.65	11.32		
Group B	Before t/t	235.05	20	48.87	10.92	54.15±23.48	10.31 p=0.0001,S
	After t/t	180.90	20	41.06	9.18		

Table 12
Showing Relief in Subjective parameters in overall patients

Symptoms	Before Treatment Score	After Treatment Score	Relief Score	% relief
<i>Kasavega</i>	40	4	36	90%
<i>Shirshool</i>	19	0	19	100%
<i>Swarbheda</i>	17	0	17	100%

Table 13
Relief in subjective parameter *Urah-parshwashool*

Symptoms	Before Treatment Score	After Treatment Score	Relief Score	% relief
Group A	23	0	23	100%
Group B	18	0	18	100%
Overall	41	0	41	100%

Table 14
Showing Comparison of overall improvement in both groups

Relief criteria	Group A	Group B	Total
Excellent (>70%)	18(90%)	18(90%)	36 (90%)
Moderate (30%-70%)	2(10%)	2(10%)	04 (10%)
Poor (<30%)	0(0%)	0(0%)	0 (0%)
Total	20(100%)	20(100%)	40(100%)

Discussion

The purpose of this study was to determine the efficacy of *Duhsparshadi Leha* and *Kantakari Avaleha* in the management of *Vataja Kasa*. It was designed to search out a safe and effective herbal remedy in the management of *Vataja Kasa*. This is a randomized clinical study in which 40 patients of *Vataja Kasa* were selected and classified into two equal groups. The study commenced after getting approval from the Institutional Ethical Committee and clinical trial registry. Patients in Group A were treated with *Duhsparshadi Leha* 10 gm twice a day after a meal with lukewarm water and patients in Group B were treated with *Kantakari Avaleha* 10 gm twice a day after a meal with lukewarm water for 15 days. Subjective parameters evaluations were conducted on the patients like *Kasavega*, *Urahparshwashool*, *Shirshool* and *Swarbheda* shown in Table no. 3 and pain assessment scale whereas Objective parameters like CBC and AEC. This trial enrolled a total of 40 patients, all of whom finished the treatment.

As shown in Table no. 4, significant improvement in *Kasavega* observed in both groups and comparison of both the groups was statistically not significant (0.63, NS) after completion of treatment that is both groups are equally effective in reducing *Kasavega*. *Kasavega* is a sign of *Vata Dosha* aggravation caused by *Dushti* of *Prana* and *Udana Vayu*. *Vata's Rooksha Guna* induces *Shushkata* in the affected area, whereas *Vata's Chala Guna* causes coughing fits on and off,

resulting in desiccation in the mouth, throat, chest, and head areas, which leads to *Shushkata*. The drug's *Ushna Veerya* and *Madhura Vipaka* can correct this *Shushkata*. *Shushka Kasa* is calmed by the precise *Doshahara Karma*, i.e., *Kasahara* property. *Tridoshshamaka*, *Kasahara*, *Jwarhara*, *Kanthya*, *Laghu*, and *Ruksha* characteristics are included in the ingredients of *Duhsparsyadi Leha* and *Kantakari Avaleha*, which aid in the suppression of *Kasavega* [12].

As indicated in Table no.5, both groups showed significant improvements in *Shirshool*, and the comparison of the two groups was statistically insignificant with a p-value of (0.07, NS) in *Shirshool*, indicating that both groups are equally successful in reducing *Shirshool*. In *Shirah Pradesh*, the *Prana Vayu* becomes vitiated, obstructing the *Srotas* in the anxious area. This *Margavarodha* has an impact *Vayu's Chala Guna*, causing an increase in pressure within the *Srotas*. This causes muscles in the *Shirah Pradesh* to tense during coughing. The neuromuscular irritation caused by the repetitive and severe Muscle contraction and relaxation in the head region, as well as the elevated intracranial pressure created throughout coughing, causes discomfort in the head region. *Kasaharana* is aided by the experimental medications *Laghu- Snigdha Gunas*, *Ushna Veerya*, and *Madhura Vipaka*. The experimental drugs *Ushna Veerya*, *Katu-Tikta-Kashaya Rasa*, and *Tikshna Guna* ease the *Avarodha* [13].

As shown in Table no. 6, significant improvement in *Swarbheda* observed in both groups and comparison of both groups was statistically not significant with (0.31, NS) p-value in *Swarbheda* that is both groups are equally effective in reducing *Swarbheda*. *Swarbheda* is caused by the *Dusthi* of *Udan Vayu*, which causes increased vibration in the vocal cord in the larynx, as well as stimulus that is both excessive and frequent of the concerned nerve, which causes impairment in creating a sound like a shattered bronze vessel. *Tikta* (pungent), *Katu* (spicy), *Madhur* (sweet), and *Kashaya Rasa* (astringent taste) are some of the ingredients in the medications utilized in this study, which aid to relieve *Dushti* of *Udan Vayu* while also soothing the mucus membrane of the throat region and so lowering *Swarbheda* [14].

As shown in Table no. 7, significant improvement in *Urah-parshwashool* observed in both groups and comparison of both groups was statistically not significant with (1.00, NS) p-value in *Urah-parshwashool* that is both groups are equally effective in reducing *Urah-parshwashool*. When *Prana Vata* and *Udana Vata* are in balance get vitiated, the *Shleshma* in the lungs becomes drier, leading the lungs to become obstructed. This leads to *Margavarodha*, which in turn leads to *Vayu Sanchara*. The *Srotas* in the chest are then blocked by obstructed *Vayu*. As a result of the increased pressure in the lungs, the muscles in the chest region contract forcefully in order to forcefully expel *Vayu*, resulting in cough. Knife attack-like pain in the flank is caused by the continual contraction and relaxation of chest muscles. *Tikta* (pungent), *Katu* (spicy), *Madhur* (sweet), and *Kashaya Rasa* (astringent taste) are some of the ingredients in the medications employed in this study, and they aid to cleanse up the *Margavarodha* and the *Kapha*. For the time being, the trial medications' *Ushna Veerya* and *Madhura Vipaka* aid in calming the *Prakupita Vata* [15].

Both *Kantakari Avaleha* and *Duhsparsyadi Leha* were found to effectively alleviate the signs and symptoms of *Vataja Kasa* in the current investigation. Due to its action locally on the lungs, as well as its *Vatashamaka* and *Kasahara* characteristics, both medications produced results. It's *Shoolahara/Vedanastapaka* qualities efficiently eased the negative effects of coughing on the flanks and chest, and it also had an anti-helminthic action, which was critical in managing the parasitic infestation-induced allergic response in the body. Statistically, significant improvement was observed in both groups in reduction of AEC after treatment.

As shown in Table no.8, 9, 10 and 11, significant improvement in was observed in reduction of TLC, Eosinophill, Neutrophills and AEC counts of both groups and Comparison of both groups was statistically not significant after treatment that is both groups are equally efficient in decreasing objective parameters. As shown in Table no.12 and 13, overall improvement in both groups, it was observed that 90% patients got relief in *Kasavega*, 100% patients got relief in *Shirshool*, *Swarbheda* and *Urah-parshwashool*. As indicated in Table no. 14, while comparing overall improvement in both groups, it was shown that the majority of patients in both groups demonstrated Excellent (>70%) to Moderate Improvement (30%-70%) associated to the study's short duration of 150 days.

Mode of action of drug

Duhsparsyadi Leha is described in *Charaka Samhita* for the treatment of *Vataja Kasa*. As *Duhsparsyadi Leha* has ingredients like *Yavasa*, *Musta*, *Karkatshringi*, *Bharangi*, *Pippali*, *Kachura*, *Puran Guda* and *Tila Tail* in this formulation where as in *Kantakari Avleheha*, it contains *Yavasa*, *Musta*, *Karkatshringi*, *Bharangi*, *Pippali*, *Kachura*, *Rasna*, *Guduchi*, *Kantakri*, *Chavya*, *Chitraka*, *Marich*, *Sunthi*. *Yavasa* (*Alhagi camelorum* Fisch) has *Madhura*, *Tikta*, *Kashaya Rasatmaka*, *Laghu* and *Snigdha Gunatmaka*, *Sheeta Virya*, *Madhura Vipaki* and *Kaphaghna*, *Vataghna* and *Pittaghna*, and *Jwarnashaka* and *Kasahara* as its *Karma*. It works as an expectorant, reducing inflammation in the respiratory system [16]. *Katu Rasatmaka*, *Laghu*, *Snigdha*, *Tikshna Gunatmaka*, *Anushnasheeta Virya*, *Madhura Vipaki*, and *Kaphavatashamaka* are all qualities of *Pippali* (*Piper longum* L.). It also has anti-inflammatory, antioxidant, and respiratory stimulating effects [17]. *Tikta*, *Katu*, *Kashaya Rasatmaka*, *Laghu*, *Ruksha Gunatmaka*, *Sheet Viryatmaka*, *Katu Vipaki*, and *Vatapittashamaka* are all properties of *Musta* (*Cyperus rotundus* Linn.). It has been demonstrated to be beneficial in the treatment of respiratory disorders caused by gastrointestinal pathology [18].

Bharangi has *Kapha Shamaka* by *Katu Rasa*, *Kaphavata Shamaka* by *UshnaVirya*, *Kasahara*, *Shwashara*, *Phuphussbaladhakya*, *Kapha Nisaran*, *Deepan*, and *Pachan* by *Karma*, hence it aids in the reduction of vitiated *Vata* and *Kapha Dosha*. It has antiprotozoal, antihelminthic, and headache-relieving effects [19]. While *Karkatshringi* (*Pistacia intergerrima*) is an expectorant and *Kaphaghna* based on its *Tikta* and *Kashaya Rasa*. It also strengthens the respiratory membrane and avoids cough [20]. Also *Kachur* (*Hedychium spicatum*) contains *Katu*, *Tikta*, *Kashaya Rasatmaka*, *Laghu*, *Teekshna Gunatmaka*, *Ushna Viryatmaka*, *Katu Vipaki*, as well as expectorant, stimulant, tonic, vasodilator,

carminative, antibacterial, anti-asthmatic, anti-inflammatory, and anti-allergic qualities ^[21] .

Marich (*Piper nigrum* L.) contains anti-inflammatory and antioxidant properties as well as the ability to counteract the sluggishness of *Pranvaha Strotas* through its *Katu Rasatmaka*, *Laghu*, and *Tikshna Gunatmaka* ^[22]. *Sunthi* (*Zingiber officinale*) is *Dipan*, *Bhedan*, *Kaphavatahar*, *Shothhar* (anti-inflammatory), anti-pyretic, carminative, and used to cure coughs, bronchitis, and other respiratory ailments ^[23]. *Chitraka* (*Plumbago Zeylanica*) – It is *Vata Kaphashamaka* because it is *Ushna Tikshna* ^[24]. *Rasna* (*Alpinia officinarum* Hance) possesses *Vatakapahara* properties due to its *Tikta Rasatmaka*, *Ushna Viryatmaka*, and *Katu Vipaki*. It also helps with bronchitis and relieves chest pain ^[25]. Due to its *Ushna Veerya*, *Kantakari* (*Solanum surattense* Burm. F.) has *Laghu*, *Ruksha Gunatmaka*, *Tikta* and *Katu Rasatmaka*, *Katu Vipaki*, and *Kaphavatashamaka*. It has anti-inflammatory and analgesic effects. It functions as an expectorant and a demulsified ^[26].

Ghrita with Sugar - *Madhur Vipaka* pacifies *Vata Dosha* and does *Bhrumhan* to *Phupphus* with *Madhura Rasa*. In *Pranvaha Strotas*, *Madhu* (Honey) removes the *Strotavarodha*. *Madhu* assists in the elimination of *Kasavega* and *Kaphanishtivana*. Effects on microbes, antioxidants, and inflammation are all found in honey. According to a research study, Honey is a well-known treatment for a variety of ailments for colds, mouth, throat, or bronchial irritations and infections in temperate climates and regions with considerable temperature changes ^[27]. Honey's antibiotic characteristics contribute in the formation of a healthy bacterial flora in the intestines, which is necessary for medicine absorption.

Tila Tail[28] - Due to its *Tikta Rasa* and *Ushna Veerya*, it serves as a *Vata Shamaka*. Because the *Tila Taila* is *Snigdha*, it eliminates *Shushkataa* in *Ura*, *Kanta*, and *Vaktra Pradesha*, while *Ushna* lessens *Sheeta Guna* and works as *Agni Deepaka*, correcting *Agni* and lowering *Shushka Kasa*. *Ushna Jala* (*Anupana*) - Because *Ushna Jala* contains *Madhura Rasa* and *Vipaaka*, it aids in the reduction of *Vata* and performs *Agni Deepana*, thus healing *Kasa*. As a result, *Duhsparsyadi Leha*, which is created with *Kasaghna* and *Vataghna Dravya*, may be a better option for *Vataja Kasa* treatment. Some *kasa related* articles were reviewed[29-35].

Conclusion

The purpose of this study was to see how effective *Duhsparsyadi Leha* and *Kantakari Avaleha* are in *Vataja Kasa*. We can deduce the following things in the present sense based on the above observations, findings, and in-depth discussions at the conclusion of the study. Due to parallels in etiological reasons, clinical characteristics, and other aspects, *Vataja Kasa* can be linked to dry cough. In both groups, *Kasavega*, *Urahparshwashool*, *Shirshool*, and *Swarbheda* showed significant progress. The difference in improvement across both subjective and objective criteria was statistically insignificant, implying that both groups are equally successful in lowering all symptoms.

Although the results of the current study were promising, i.e. comparative outcomes of *Duhsparsadi Leha* in subjective and objective criteria of *Vataja Kasa*, a larger research study with a larger sample size is needed to fully support this conclusion by assessing the analyses and results. *Duhsparsadi Leha*, a herbal concoction, can effectively control *Vataja Kasa*.

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