

COMPARATIVE CLINICAL EVALUATION OF *VIRECHANA KARMA* AND *JALKUMBHI BHASMA* IN HYPOTHYROIDISM

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ABSTRACT

With the increased shift toward economic growth and the rising influence of Western lifestyles over the past few decades, the prevalence of lifestyle disorders has escalated to concerning levels among the Indian population. Hypothyroidism is a common endocrine disorder marked by insufficient thyroid hormone production, leading to slowed metabolism. It mainly affects women and presents with fatigue, weight gain, cold intolerance, dry skin, constipation, and depression. All metabolic activities are governed by *Agni* (*Jatharagni*, *Dhatwagni*, *Bhutagni*). Though hypothyroidism is not directly described in Ayurveda, its features correlate with *Dhatwagnimandhya*, where hypofunction of *Jatharagni* leading to impaired *Dhatwagni* forms the basis of disease development. Conventional management of hypothyroidism relies mainly on synthetic hormone replacement such as levothyroxine, often

overlooking the underlying causes and the long-term effects of lifelong therapy. *Ayurvedic* interventions aim to naturally improve thyroid function, reduce dependence on synthetic drugs, and promote overall well-being, thereby offering a safer, effective, and sustainable treatment approach. The study, entitled “Comparative Clinical Evaluation of *Virechana Karma* and *Jalkumbhi Bhasma* in Hypothyroidism”, was conducted in 40 patients. They were selected on the basis of standard inclusion and exclusion criteria and randomly allocated to

two different treatment groups: Group-A (*Virechana Karma*) and Group B (*Jalkumbhi Bhasma*). The total duration of treatment was 2 months, and follow-up was done 1 month after completion of treatment. Both interventions were effective, but in the overall improvement of the patients, “Group-A” had better results than “Group-B”. For better scientific validation, further research studies and clinical trials should be conducted with a larger sample size and a longer treatment duration.

KEYWORDS: Hypothyroidism, *Dhatwagnimandhya*, *Virechana Karma*, *Jalkumbhi Bhasma*.

INTRODUCTION

The thyroid is a major endocrine gland that regulates most bodily functions. It produces thyroxine (T4) and triiodothyronine (T3), which are essential for metabolism, growth, and development. Hypothyroidism is caused by an absolute or relative deficiency of thyroid hormones due to thyroid or pituitary dysfunction. Hypothyroidism affects up to 5% of the general population, with a further estimated 5% being undiagnosed. Female gender and older age were found to have a significant association with Hypothyroidism.^[1] The symptoms include weight gain, periorbital puffiness, lethargy, cold intolerance, loss of hair, dry skin, hoarseness of voice, constipation, and irregular menstrual cycle.

Direct description of hypothyroidism is not mentioned in *Ayurvedic* texts. Metabolism can be correlated with the functions of Agni, which are the transformation, transportation, and assimilation of substrates. As all the metabolic processes of the body are under the control of Agni. So it can be correlated with *Agnimandhya Avastha*, especially *Dhatu Agnimandhya*, which has specific symptoms according to different stages, very similar to the symptoms of hypothyroidism. *Shodhana* and *Shamana* are the principal treatment utilities described in *Ayurveda*. Both are subjected to establish their effect on hypothyroidism. In Hypothyroidism, *Dhatuagni* and somewhat *Bhutagni* are disturbed, leading to excessive *Meda Dhatu* and degeneration of the rest of *Dhatu*.

Management of hypothyroidism with modern drugs may bring the value of TSH and T4 to the normal range, but increased dosage and continuous medication make the patient drug dependent till the end of mortal life and have many side effects. Hormone replacement with medication is not an option for the *Ayurvedic* care of hypothyroidism. However, one might understand the pathophysiology of hypothyroidism in the framework of *Ayurveda*, where Agni plays a crucial role and can be managed to restore healthy, normal thyroid gland

function. So *Srotoshodhan* is the best treatment approved so far. In this study, *Virechana Karma* is chosen as it is indicated in the *Amashyagatha* and *Pachyamanashyagatha Kapha* and *Pitta*. It is also a specific treatment for the regulation of *Pitta* and *Kapha Samsargaja Pitta* or *Vata*, and eliminates *Pitta* from *Pittasthana* and *Kaphasthana*.^[2] Other than this, *Virechana* is indicated in *Bahudosha Avastha*.

Jalakumbhi is known for its *Tridosha Shamaka* properties.^[3] It also has *Tikta*, *Madhur Rasa*, and *Laghu*, *Ruksha Guna*; all these together work in breaking down the pathogenesis of the disease. *Jalakumbhi Bhasma* is mentioned in *Galganda Chiktisa* in *Bhaishajya Ratnavali*.^[4] It is also a rich source of iodine, which is crucial for the synthesis of the T3 hormone from T4.

AIMS AND OBJECTIVES

To compare the efficacy of *Virechana Karma* and *Jalkumbhi Bhasma* in Hypothyroidism.

MATERIALS AND METHODS

For the present clinical study, patients were completely screened based on signs and symptoms of Hypothyroidism from the OPD of the Panchakarma department of Rishikul Campus Hospital.

Inclusion Criteria

- Diagnosed cases of Hypothyroidism based on serum TSH, T3 and T4 levels.
- Patient's serum TSH level > 4.5 mIU/L upto 15 mIU/L.
- Total serum T4 level normal or less than normal value (Total serum T4= 4.5 - 12.5 mg/dl).
- Total serum T3 level normal or less than normal value (Total serum T3= 80-220 ng/dl).
- Under the age of 20 – 60 years.
- Patients who are freshly diagnosed with Hypothyroidism.
- Patients who are under Levothyroxine medication 50µgm but presenting with diagnostic criteria are included.
- Chronicity less than five years is included.

Exclusion Criteria

- Patient who has undergone any type of thyroid surgery, such as thyroidectomy or lobectomy.

- Patient suffering from uncontrolled systemic diseases like Cardiovascular disorder, Diabetes, and Carcinomas.
- Patient suffering from congenital Hypothyroidism and Secondary Hypothyroidism.
- Pregnant women, Hyperthyroidism, Neoplasia, and Toxic goiter are excluded.
- Chronicity above 5 years.
- TSH value above 15 mIU/L

Grouping

Group A: In 20 patients, *Virechana* was given in 2 sittings, with 15 days of interval between them.

Group B: In 20 patients, *Jalkumbhi Bhasma* was administered orally in the form of a capsule for a period of 60 days.

Assessment Criteria

Subjective Criteria

PUFFINESS	GRADING
Absent	0
Occasional	1
Daily periorbital edema/puffiness in the morning, relieved in the later part of the day	2
Persistent	3

EDEMA	GRADING
Absent	0
Edema over lower/ upper extremities	1
Edema over both extremities	2
Edema all over the body	3

DRY AND COARSE SKIN	GRADING
No dryness	0
Dryness after bath only	1
Dryness all over the body, but relieved by oil application	2
Dryness is not even relieved by oil application	3

CONSTIPATION	GRADING
Normal bowel habit	0
Passes stools daily but with slight difficulty	1
Passes hard stools on alternate days	2
Patient needs some laxatives to pass stool	3

CONSTIPATION	GRADING
Normal bowel habit	0
Passes stools daily but with slight difficulty	1
Passes hard stools on alternate days	2
Patient needs some laxatives to pass stool	3

HOARSENESS OF VOICE	GRADING
Normal: no throat irritation	0
Mild: mild throat irritation	1
Moderate: throat irritation and partial change in voice	2
Severe: complete change in voice	3

COLD INTOLERANCE	GRADING
Normal: absence of cold intolerance	0
Mild: not like ac or cold wave	1
Moderate: not like fan or hyperventilated area	2
Severe: likes to wear warm clothes in summer	3

DURATION OF MENSTRUAL BLOOD	GRADING
4-7 days	0
3 days	1
2 days	2
1 day	3

Interval between two cycles	GRADING
25-29 days	0
35-39 days	1
40-45 days	2
More than 45 days	3

AGNI BALA ASSESSMENT

A. Abhyavaharana Shakti	GRADING
Good quantity thrice a day	0
Reduction upto 25%	1
Reduction upto 50%	2
Reduction upto 75%	3

B. Jarana Shakti (Utsaha, Laghuta, Udgarsuddh, Kshut, Trushna, Yatthochitkala, Malapravritti)	GRADING
Presence of all symptoms	0
Presence of any 4 symptoms	1
Presence of any 3 symptoms	2
Presence of less than 3 symptoms	3

ASSESSMENT OF WEIGHT GAIN	GRADING
No weight gain	0
Slight lightening of clothing	1
Unable to wear already stitched clothes	2
Rapid weight gain with excessive fat deposition	3

Objective criteria

Thyroid Profile

Statistical Analysis

The information collected based on observations made during the treatment was analysed on statistical criteria in terms of Mean score (X), Standard Deviation (S.D), & Mean difference percentage.

- For intra-group comparison of subjective parameter, **Wilcoxon test** was applied.
- For intra-group comparison of objective parameter, **paired ‘t’-test** was applied.
- For inter group comparison of subjective parameter **Mann Whitney U** was applied
- For inter group comparison of objective parameter, **Unpaired ‘t’ test** was applied.

The tests were carried at the 0.05, 0.001, 0.0001 level of P

The obtained results were interpreted as:

- $p < 0.001$ = Highly Significant (HS)
- $P \leq 0.05$ and $P < 0.01$ = Significant (S)
- $P > 0.05$ = Not Significant (NS)

OBSERVATIONS AND RESULTS

50 patients were screened out of which 40 patients were selected on the basis of inclusion and exclusion criteria. Thus, total 40 patients were registered for the trial and randomly divided into two groups (20 patients in each group) out of which 18 patients completed the treatment in Group A and 19 completed the treatment in Group B.

Demographic Data

Age: Out of 40 patients, the maximum number of patients (i.e., 30%) were between the age group of 31-40 (30%) and 20-30 (30%), followed by 22% between the age group 41-50 years, and rest 18% in 51-60 years. The maximum number of patients belongs to the young and middle age groups, which indicates a higher incidence of hypothyroidism in young and middle age group people, due to a sedentary lifestyle and stress. Due to the small sample size,

it is difficult to draw any concentrate conclusion as one can't assume that the disease is more prevalent in middle age, but can occur at any stage of life.

Gender: 90% of patients in this study were females, and only 10% were males. It clearly shows its predominance in females. Because most thyroid disorders are autoimmune in nature, a higher vulnerability to autoimmune diseases, maybe as a result of the female endocrine environment. Besides these hormonal imbalances and variations throughout menstrual cycles, during pre-menopause and menopause, as well as during and after pregnancy.

Marital status: In this study 77% patients were married and 23% were unmarried. As per the American Thyroid Association, the rate of Hypothyroidism increases after pregnancy and postpartum.^[6]

Religion: In this study maximum number of patients. i.e., 98% belong to the Hindu community, whereas 2% patients belong to the Muslim community. This reflects the geographical predominance of Hindus in Haridwar District.

Habitat: 68% of patients in this study were from urban areas, followed by 25% semi-urban and 7% rural. It might be a sign of a stressful and sedentary lifestyle among urban residents, as well as an irregular eating pattern.

Nature of work: The analysis of data shows, i.e., 40% of people have a sedentary nature of work, 32% were moderately active, and 28% had an active nature of work. Sedentary lifestyles contribute to reduced metabolic rate, increased adiposity, elevated stress levels, and impaired thyroid hormone sensitivity, all of which can aggravate hypothyroidism. Increased stress (common in desk jobs) leads to higher cortisol, → negatively affects thyroid hormone production. Physical activity enhances metabolic efficiency, improves peripheral hormone sensitivity, reduces systemic inflammation, and supports better regulation of the hypothalamic-pituitary-thyroid (HPT) axis.

Socioeconomic status: The maximum number of patients, i.e., 62% were middle class, followed by 18% upper middle class, 15% lower middle class, 3% were high class, and 2% were poor. Due to the competitive environment and **increasing inflation, stress** (physical or emotional) is prevalent among individuals in the middle socioeconomic class.

Occupation: In the present study maximum number of patients, i.e., 57% were housewives, 25% were doing service, 15% were students, and 3% were in business. This may be due to a sedentary lifestyle, especially those with limited outdoor activity (causing vitiation of *Agni*), *Vegadharana*, and household tensions. A sedentary lifestyle results in lower energy expenditure. Symptoms like fatigue or weight gain are often dismissed or normalized, leading to late diagnosis.

Agni: *Agni* assessment reveals that the maximum number of patients, i.e., 48% had *Mandagni*, followed by 42% with *Vishamagni*, 7% with *Samagni*, and the remaining 3% with *Tikshanagni*.

As we know, all the metabolic processes are under the influence of *Agni*. Due to various *Hetus*, there is aggravation of *Kapha-Vata Dosha* and diminished *Agni* at *Dhatu* level. In hypothyroidism, *Agnimandya* plays a vital role in pathogenesis, resulting in decreased metabolism with the manifestation of signs and symptoms.

Koshtha: In this study, 58% of patients had *Madhyam Koshtha*, 40% had *Krura Koshtha*, and 3% had *Mridu Koshtha*. The maximum number of patients had *Madhyam Koshtha*, which indicates the dominance of *Kapha Dosha*, which is one of the factors in developing the pathogenesis of hypothyroidism.

Bowel habits: In the present study, 40% of the patients had irregular bowel habits, 38% had constipation, and 22% had normal bowel habits. It is due to a decreased level of thyroid hormones that there is reduced gastrointestinal motility, resulting in irregular bowel movements.

Appetite: In this study, it shows that the maximum number of patients, i.e., 55% patients had poor appetite, 45% had normal, and none had increased appetite. It is due to *Agnimandya* that the poor appetite was seen in the maximum patients.

Menstrual history: The data show that 50% of the patients had irregular menses, 36% had regular menses, and 14% had menopause. In hypothyroidism, low thyroid hormone triggers increased TRH, which raises TSH and prolactin levels. Elevated prolactin suppresses GnRH, reducing LH and FSH, leading to ovulatory issues and menstrual irregularities like oligomenorrhea or amenorrhea. Without ovulation, progesterone isn't produced, but estrogen still stimulates the uterine lining, leading to irregular or heavy bleeding (menorrhagia).

Emotional status: The data analysis shows that 48% of the patients had stress, 40% were normal, 7% had anxiety, and 5% were depressed. Stress activates the **HPA axis**, leading to increased **cortisol secretion**. Prolonged high cortisol levels can suppress the HPT axis, reducing TRH release and contributing to hypothyroidism. This hormonal imbalance lowers **serotonin, dopamine, and norepinephrine** levels, increasing stress sensitivity and affecting mood stability.

Prakruti: The maximum number of patients, i.e., 58%, exhibited *Kaphavataj Prakruti*, followed by 33% with *Pittakaphaja*, and 10% were with *Vatapittaja*. The *Ashraya–Ashrayee Bhava* of *Meda*, along with *Kapha* acting as the *Dushya* in hypothyroidism, shows a strong affinity toward *Kapha Dosha*. Hence, individuals with *Kapha Prakriti* are more prone to *Meda Dushti*. Common features seen in *Kapha-Pitta Prakriti* include weight gain, difficulty in weight loss, myxoedema, fatigue, and joint pain.

Chief Complaints: Among the chief complaints of hypothyroidism muscle ache was present in 80% of the patients, dry and coarse skin was present in 75% of the patients, and weight gain was present in 73% of the patients. Hair loss was present in 72% of the patients, 60% had constipation and puffiness, 45% had edema and menstrual disturbances, 40% had cold intolerance and hoarseness of voice. These complaints are must to diagnose the patients with hypothyroidism, so most patients had these chief complaints.

Chronicity: The chronicity of disease in 45% of patients was between 3-5 years, followed by 40% having chronicity between 1-3 years, and 15% with chronicity less than 1 year. Chronicity may be suggestive of a gradual onset of disease. Another factor may be that patients visit Ayurvedic medical hospitals after taking allopathic medicine for years.

Effect of Treatment

1. *Virechana Karma* (Group- A)

Table 1: Subjective Parameters (Wilcoxon signed rank test)

Subjective Parameters	N	Mean		Median		SD		Wilcoxon W	P-Value	% Effect	Result
		BT	AT	BT	AT	BT	AT				
Weight gain	14	1.71	0.21	2	0	0.46	0.43	-105	0.0007841	87.5	H.S
Cold intolerance	6	1.16	0.16	1	0	0.40	0.40	-15	0.04771	64.28	S
Dry and coarse skin	14	1.71	0.14	2	0	0.47	0.37	-105	0.0007841	87.5	H.S
Constipation	10	1.3	0.2	1	0	0.48	0.42	-45	0.006008	84.61	S
Menstrual disturbances	8	1.13	0.38	1	0	0.46	0.74	-28	0.01073	60	S
Puffiness	10	1.4	0.1	1	0	0.52	0.32	-55	0.004157	84.41	S

Edema	7	1.5	0.2	2	0	0.53	0.48	-28	0.01766	81.82	S
Muscle ache	14	1.71	0.21	2	0	0.47	0.43	-105	0.0005384	85	H.S
Hoarseness of voice	7	1.29	0.56	1	1	0.49	0.54	-15	0.0369	55.56	S
Agni Bala	17	1.2	0.18	1	0	0.43	0.39	-136	0.0001499	85.7	H.S

Table 2: Objective Parameters (Paired t-test).

Objective Parameters		Mean	N	SD	SE	t-value	P-value	% change	Result
T₃	BT	1.14	18	0.74	0.17	-2.1138	0.04961	26.50	S
	AT	1.44	18	0.78	0.18				
T₄	BT	6.12	18	2.16	0.51	-2.799	0.0123	15.91	S
	AT	7.09	18	2.51	0.59				
TSH	BT	8.14	18	2.482	0.58	-8.7844	0.0001	40.11	H.S
	AT	4.87	18	2.092	0.49				

2. Jalkumbhi Bhasma on Group B patients

Table 3: Subjective Parameters (Wilcoxon signed rank test).

Subjective Parameters	N	Mean		Median		SD		Wilcoxon W	P-Value	% Effect	Result
		BT	AT	BT	AT	BT	AT				
Weight gain	13	1.46	0.85	1	1	0.50	0.59	-36	0.005962	42.11	S
Cold intolerance	8	1.25	0.63	1	1	0.46	0.52	-15	0.03689	30	S
Dry and coarse skin	18	2.14	0.83	1	1	0.51	0.38	-55	0.002741	42.31	S
Constipation	12	1.08	0.67	1	1	0.29	0.49	-45	0.003353	69.23	S
Menstrual disturbances	9	1.2	0.67	1	1	0.44	0.5	-15	0.03689	27.27	S
Puffiness	13	1.62	0.69	2	1	0.51	0.63	-66	0.001586	57.14	S
Edema	12	1.25	0.5	1	1	0.45	0.52	-45	0.003353	60	S
Muscle ache	15	1.6	0.87	2	1	0.63	0.36	-55	0.0024741	42.97	S
Hoarseness of voice	9	1.2	0.8	1	1	0.44	0.5	-15	0.03689	45.46	S
Agni Bala	17	1.12	0.35	1	0	0.33	0.49	-78	0.0009212	68.42	H.S

Table 4: Objective Parameters (Paired t-test)

Objective Parameters		Mean	N	SD	SE	t-value	P-value	% change	Result
T₃	BT	5.84	19	20.17	4.63	-0.9488	0.3553	1.03	N.S
	AT	5.90	19	20.42	4.68				
T₄	BT	6.56	19	1.98	0.45	-1.0407	0.3118	1.9	N.S
	AT	6.68	19	2.22	0.51				
TSH	BT	6.58	19	0.81	0.19	-0.3639	0.7201	1.14	N.S
	AT	6.50	19	1.25	0.29				

Intergroup Comparison

Table 5: Cumulative table of intergroup comparison of subjective parameters (Mann-Whitney U test)

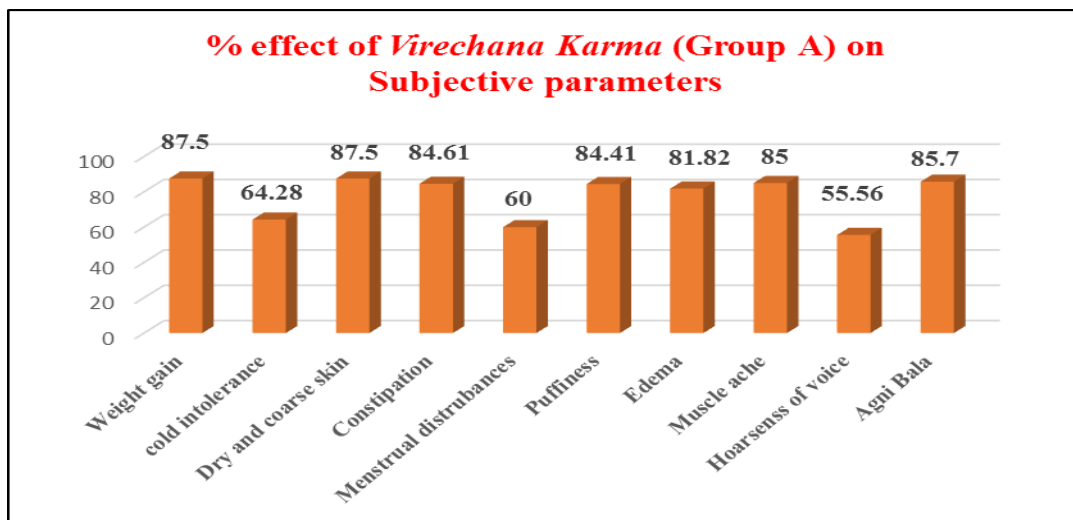
Variable	Group	N	Mean Rank	Sum of Ranks	Mann - Whitney U	P- Value	RESULT
Weight gain	Group A	16	18.5	259	162	0.0001999	H.S
	Group B	13	9.2	119			
	Total	29					
Cold intolerance	Group A	6	10.56	84.5	48.5	0.0489	S
	Group B	8	6.44	51.5			
	Total	14					
Dry & coarse skin	Group A	14	21.75	304.5	199.5	0.0006688	H.S
	Group B	18	12.41	223.5			
	Total	29					
Constipation	Group A	10	13.3	133	78	0.1395	N.S
	Group B	12	10	120			
	Total	22					
Menstrual disturbances	Group A	8	10.86	87	51	0.1072	N.S
	Group B	9	7.33	66			
	Total	11					
Puffiness	Group A	10	13.95	153.5	87.5	1.1233	N.S
	Group B	13	11.2	146.5			
	Total	23					
Edema	Group A	7	12.79	89.5	61.5	0.0376	S
	Group B	12	8.38	100.5			
	Total	19					
Muscle ache	Group A	14	19.07	267	162	0.01352	S
	Group B	15	12.38	198			
	Total	29					
Hoarseness of voice	Group A	7	9.21	64.5	36.5	0.5708	N.S
	Group B	9	7.94	71.5			
	Total	16					
Agni Bala	Group A	17	19.74	335.5	182.5	0.09453	N.S
	Group B	17	15.26	259.5			
	Total	34					

Table 6: Cumulative table of intergroup comparison of objective parameters (Unpaired t-test).

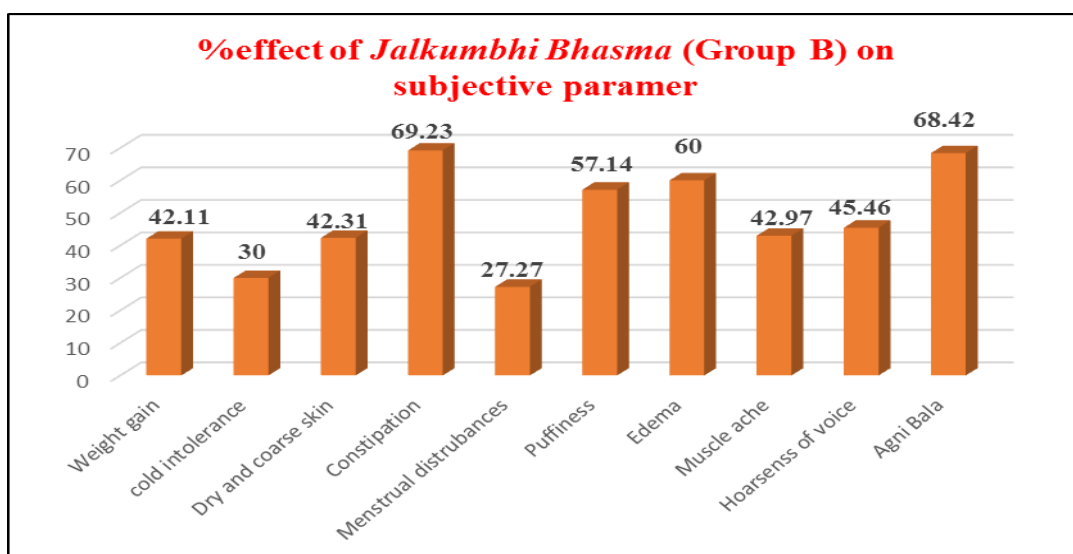
Variable	Group	N	Mean	SD	SE	t-value	P-value	Result
T ₃	Group A	18	0.30	0.61	0.14	1.6056	0.1174	N.S
	Group B	19	0.06	0.28	0.06			
T ₄	Group A	18	0.97	1.48	0.35	2.3200	0.0263	S
	Group B	19	0.13	0.54	0.12			
TSH	Group A	18	3.26	1.58	0.37	7.6968	0.0001	H.S
	Group B	19	0.07	0.90	0.20			

Table 7: Overall effect of the therapy.

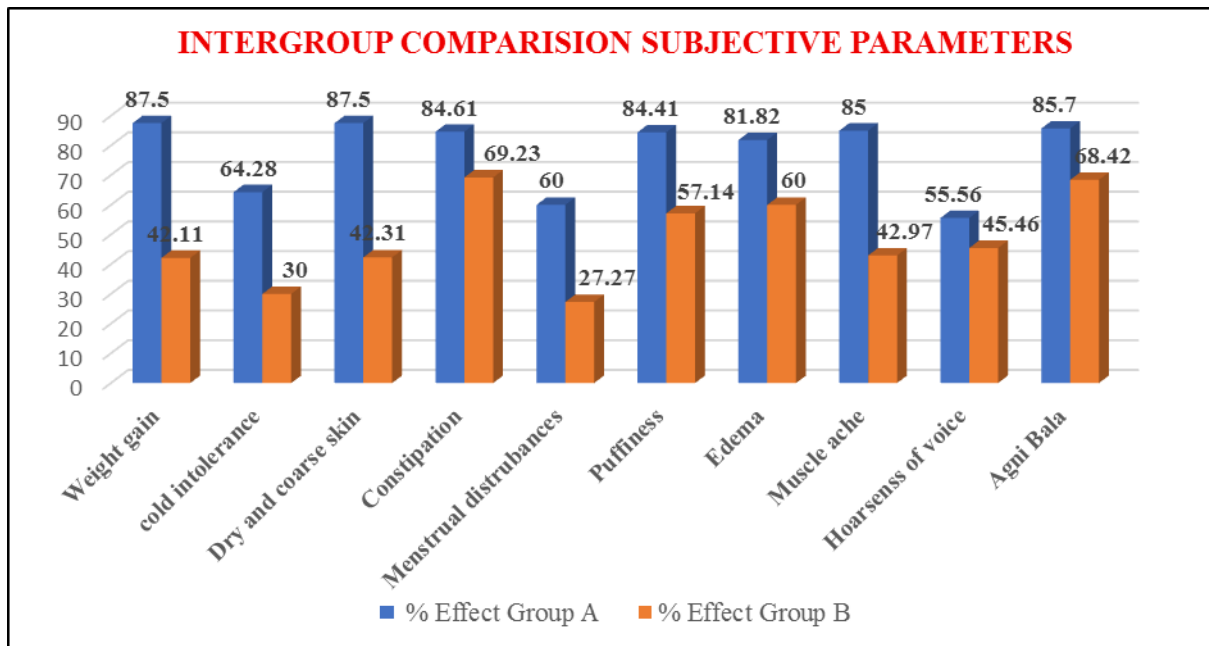
Overall Effect	Group A		Group B	
	N	%	N	%
Complete remission (100% relief with no recurrence)	0	0.00%	0	0.00%
Marked Improvement (>75% - <100%)	0	0.00%	0	0.00%
Moderate Improvement (>50% - 75%)	5	27.78%	0	0.00%
Mild Improvement (>25% - 50%)	13	72.22%	7	36.84%
No Improvement (up to 25%)	0	0.00%	12	63.16%
TOTAL	18	100%	19	100%



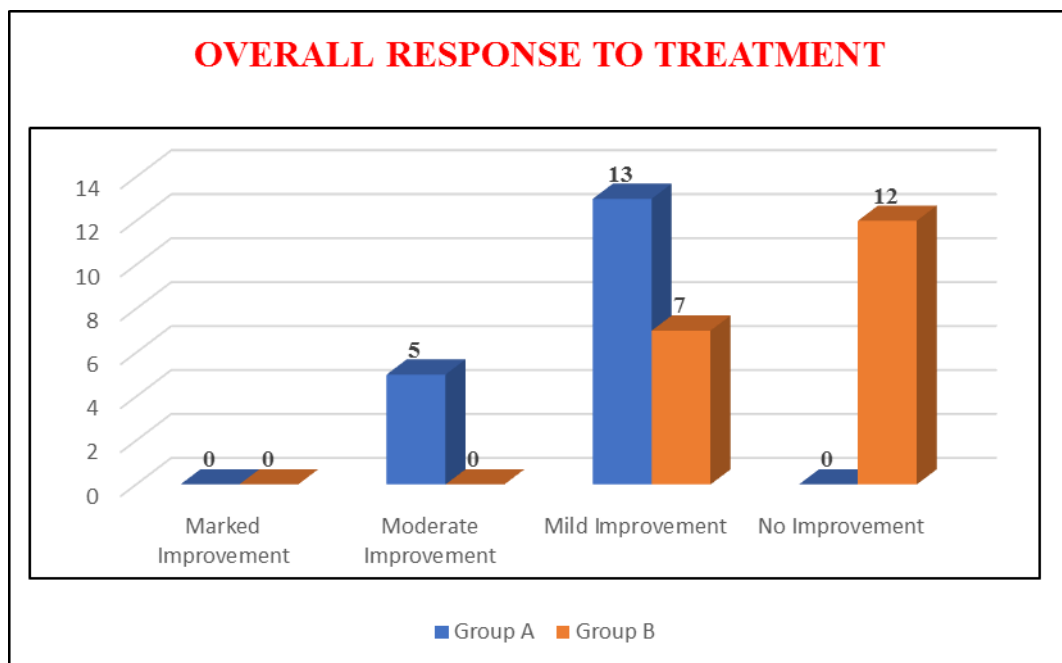
Graph 1: Percentage relief in subjective parameter in Group A.



Graph 2. Percentage relief in subjective parameter in Group B.



Graph 3: Inter Group Comparison of subjective parameter.



Graph 4: Overall response to treatment.

DISCUSSION

Metabolism is regulated by enzymes and hormones that ensure proper nutrient utilisation; dysfunction in this system leads to metabolic imbalance and disease. Hypothyroidism is a multisystem metabolic disorder with diverse physical and psychological manifestations. The thyroid gland, the largest endocrine gland, acts as the body's primary metabolic regulator, influencing almost all bodily functions. This condition is not described under a specific name

in classical *Ayurvedic* texts. Classical *Ayurvedic* texts suggest that thyroid functions resemble those of **Agni**. In hypothyroidism, there is impairment of *Jatharagni* along with *Dhatwagni* and *Bhutagni*, and vitiation of *Doshas*, mainly *Kapha* and *Vata*. *Kapha-Pradhana Dosha Prakopa*, due to *Nidana Sevana*, leads to *Dhatwagnimandya*.

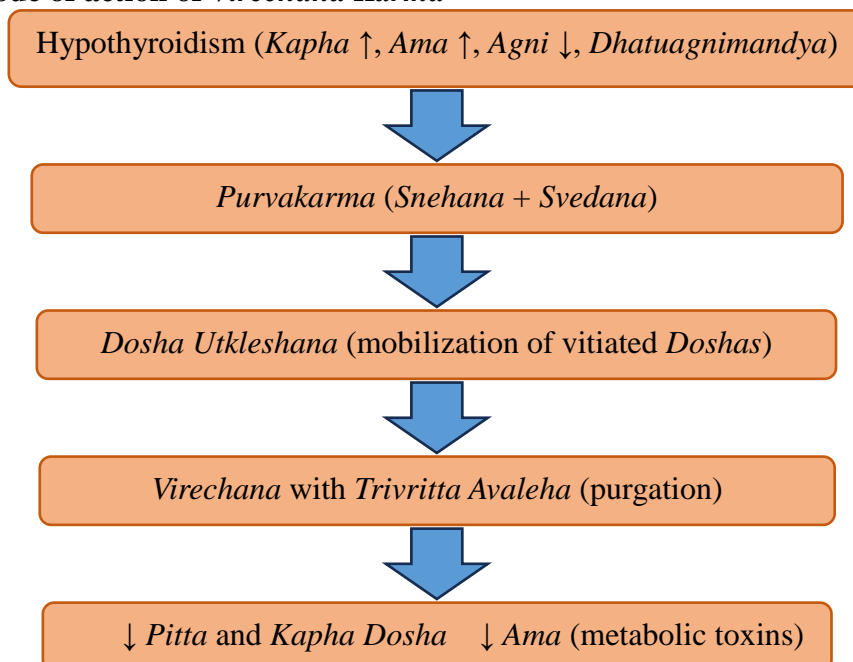
As *Agni* is the main site of pathogenesis in hypothyroidism, its correction is the primary treatment goal. Hence, management focuses on *Agni Deepana*, *Ama Pachana*, *Kapha–Vata Shamana*, and *Srotoshodhana*. Accordingly, *Virechana Karma* and *Jalkumbhi Bhasma* were selected in this study, and the findings may guide future treatment approaches.

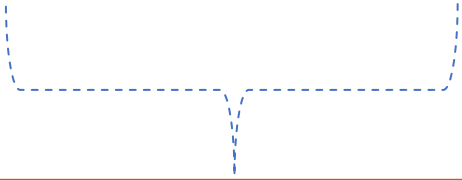
Probable mode of action of *Virechana Karma*

Trivritta Avaleha was selected for *Virechana Karma*. *Trivritta Avaleha* possesses qualities that promote *Sukha Virechaka*. *Trivritta* has *Madhura*, *Kashaya*, *Tikta Rasa*, *Katu Vipaka*, and *Ushna Veerya*. It helps to pacify or expel *Pitta* and *Kapha Dosha Trivritta* with *Bhedana*, *Rechana*, *Sothahara*, *Lekhana*, and also *Tridoshashamaka* properties, bringing the *Doshas* to a state of equilibrium.^[6]

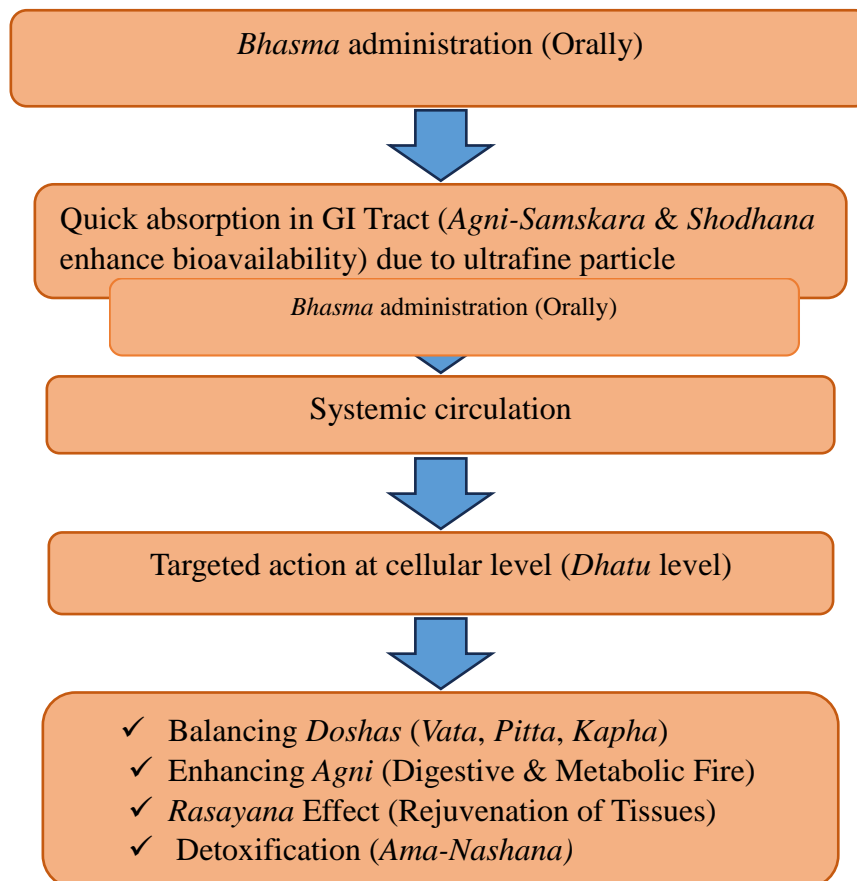
- *Virechana* cleanses the GI tract, especially the small intestine and liver, which are vital for hormone and micronutrient metabolism.
- It supports the **gut–thyroid axis**, aiding T4→T3 conversion and micronutrient absorption, while the **liver** facilitates deiodination, conjugation, and elimination of thyroid hormones.

Probable mode of action of *Virechana Karma*



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- *Srotoshodhana* (clears channels)
 - *Agni Deepana* (stimulates metabolism)
 - *Dhatu Agni Vriddhi* (revives tissue fire)

Probable mode of action of *Jalkumbhi Bhasma*



In this study, *Jalkumbhi Bhasma* was chosen for its *Tridoshashamaka* and *Shothahara* properties, beneficial in hypothyroidism^[7] Its *Guna–Karma* counteracts the key pathological factors—*Dosha* (predominantly *Vata* and *Kapha*) and *Dushya* (mainly *Rasa* and *Meda Dhatu*s)—thereby aiding *Sampraptivighatana* and symptom relief.

Jalkumbhi Bhasma, with *Tikta Madhura Rasa* and *Laghu Ruksha Guna*, purifies *Srotas*, reduces *Kapha*, and pacifies *Vata*. According to *Samanya Vishesha Siddhanta*, it counteracts *Kapha*'s *Guru* and *Manda* qualities, thereby enhancing *Dhatwagni* and eliminating *Ama*.

CONCLUSION

Both *Virechana Karma* and *Jalkumbhi Bhasma* provide significant relief in symptoms of Hypothyroidism. No adverse effects were found in both the groups. In group A: Highly significant ($P<0.001$) – was found in weight gain, dry and coarse skin, muscle ache, *Agni Bala* Significant ($P<0.05$) - was found in cold intolerance, constipation, menstrual disturbances, puffiness, edema, and hoarseness of voice.

In group B: **Highly significant ($P<0.001$)**- was found in *Agni Bala*.

Significant ($P<0.05$)- was found in weight gain, dry and coarse skin, cold intolerance, muscle ache, constipation, menstrual disturbances, puffiness, edema, and hoarseness of voice.

In objective parameters. The effect of therapy on thyroid profile shows **Highly significant result ($P<0.001$)** in TSH, **Significant result ($P <0.05$)** in T_3 and T_4 , while in group B **Non-significant result ($P > 0.05$)** seen in TSH, T_3 and T_4 .

Intergroup comparison

A highly significant result ($P<0.001$) was found in weight gain, dry and coarse skin. Significant result ($P<0.05$) were found in cold intolerance, edema, and muscle ache, and not significant results ($P>0.05$) were found in constipation, menstrual disturbances, puffiness, hoarseness of voice, and *Agni Bala* in all subjective parameters.

Highly significant difference ($P<0.001$) was found in TSH, Significant difference ($P<0.05$) was found in T_4 , and not significant difference ($P>0.05$) was found in T_3

Percentage wise, *Virechana Karma* has shown better results than *Jalkumbhi Bhasma*.

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