Original Article

Clinical evaluation of *Trivṛta* powder (*Operculina turpethum* Linn.) and *Aragvadha Patra Lepa* (paste of leaves of *Cassia fistula* Linn.) in the management of *Vicharchika* (eczema)

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Abstract

Background: In *Ayurveda,* majority of skin diseases have been mentioned under the umbrella of *Kushtha* and in other words, it can be listed as "*Ayurvedic* dermatology." Among them, *Vicharchika* (eczema) included under *Kshudra Kushtha*, has been mentioned as curable disease, but due to relapsing nature of the disease and hazardous side effects of the modern drugs, it is difficult to manage. *Ayurveda* classics described a number of formulations to combat *Kushtha* (skin diseases) which offers effective remedy for eczema. Therefore, the attempt was done to assess the effect of *Nitya Virechana* (regular purgation) along with local application in its management. **Aim and Objective:** The aim of this study is to compare the efficacy of *Trivritta* powder along with *Aragvadha Patra Lepa* (paste) and *Aragvadha Patra Lepa* (paste) alone as local application in the management of *Vicharchika* (eczema). **Materials and Methods:** A total of 63 patients of *Vicharchika* (eczema) were selected and allocated in 2 groups, out of which 60 patients (30 patients each) completed the trial treatment. Group A received *Trivritta* powder (*Operculina turpethum* Linn.) along with local application of paste of leaves of *Aragvadha* (*Cassia fistula* Linn.) and group B received local application of *Aragvadha Patra Lepa* (paste) for the duration of 4 weeks. **Results:** All calculations were calculated through 'Graph Pad In Stat 3' software. *Nitya Virechana* (regular purgation) by *Trivritta* along with *Aragvadha Patra Lepa* (group A) proved more effective to control itching, discharge, burning sensation, eruption, discoloration, pain and edema of cases of *Vicharchika*. **Conclusion:** Treatment with *Trivritta* (*Operculina turpethum* Linn.) along with local application of paste of *Aragvadha Patra Lepa* is effective in reducing the symptoms of *Vicharchika Kushtha* (eczema).

Keywords: *Aragvadha Patra Lepa*, eczema, *Trivritta* powder, *Vicharchika*

Introduction

Any disorder which affects the skin needs primary attention as it reflects the pathology inside the body and can cause embarrassment. Hence, any disorder affecting skin must be noticed very early and the treatment modalities should be started as early as possible. Skin diseases have increased markedly nowadays because of changed work culture, faulty food habits, lack of exercise, changing lifestyle and increasing pollution.[1]

Ayurveda describes the wide spectra of skin disorders as "*Kushtha"* and is classified into two divisions, i.e., *Maha Kushtha* and *Kshudra Kushtha. Vicharchika* is enlisted under *Kshudra Kushtha*. All type of *Kushtha* are *Tridoshaja* (involving vitiation of these biohumours), hence *Vicharchika* is also *Tridoshaja* in origin. Most of the texts have described that *Vicharchika* has *Kapha* dominancy and comes under *Raktapradoshaja Vikara* (disorder occurring due to vitiation of blood). *Vicharchika* to a greater extent resembles eczema. Eczema is an inflammatory condition of the skin response to many injurious agents characterized by groups of vesicular lesions with a variable degree of exudates and scaling. In some cases, dryness and scaling predominate, with slight inflammation. In more acute cases, there may be considerable

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inflammation and vesicle formation.[2] The prevalence of eczema has been found to have increased substantially in the latter half of the 20th century, with eczema being found to increase between the late 1940s and 2000.

Modern medical science treats eczema with systemic steroids and other therapeutics to give symptomatic relief. No doubt, the use of steroids suppresses eczema, but it costs deeply in the severe long-term toxicity, including osteoporosis, skin fragility, susceptibility to infection and pituitary-adrenal axis suppression.

Therefore, world is looking toward other system of medicine, especially *Ayurveda* for this problem. *Kushtha* and its subtypes have been considered as a "*Sapta Dravyasamgraha*" (combination of seven pathological factors). *Rakta Dushti* (vitiation of blood) is one of the important causes of *Kushtha*.

Virechana Karma (medicated purgation) is indicated not only for *Pitta Dosha* but also in *Kapha* and vitiated *Rakta*. Regular purgation by *Trivritta* (*Operculina turpethum* Linn.) eliminates aggravated *Dosha* (humor). It is also observed that cleansing of bowel is one of the most important treatments before administration of any drug, especially rejuvenation therapy,[3] and in case of *Trivritta* by the effect, it is laxative and by the virtue of characteristic taste and properties, it helps to treat *Kushtha*. According to *Acharya Sushruta,* if *Kushtha* is located in *Tvak* (*Rasa*), *Shodhana* (purification) and *Lepa* (local application) should be used.[4] Depending on invading nature of disease, the treatment principle of *Kushtha* may change in addition to previous *Dhatugata* treatment. *Acharya Charaka* has categorically mentioned the different categories of external *Kushthahara Lepa* and has even given equal importance to external application and internal (*Shamana*) therapy.[5] Hence, for the clinical study, *Aragvadha Patra Lepa*[6,7] (paste of leaves of *Cassia fistula* Linn.) was selected for local application.

Hence, the present study was aimed to assess and compare the efficacy of *Trivritta* powder (*Operculina turpethum* Linn.) given orally along with local application of *Aragvadha Patra Lepa* (paste of leaves of *Cassia fistula* Linn.) and locally applied paste of *Aragvadha* leaves alone in the management of *Vicharchika Kushtha.*

Materials and Methods

Study design

The present clinical trial was an open labeled randomized, prospective clinical trial with efficacy as end point.

Source of data

Patients suffering from eczema fulfilling the inclusion criteria were selected from the outpatient department of Roganidana evam Vikriti Vijnana of the hospital of NIA, Jaipur. The informed consent from each patient was taken. The reference number of the Institutional ethics committee is 2012–13/15301. The CTRI number for this trial is CTRI/2016/08/007192.

Inclusion criteria

Patients with the classical sign and symptoms of eczema, namely itching, discoloration, discharge, burning sensation, dryness, pain, lines/thickening of skin and eruption and patients above 18–70 years belonging to either sex were selected for the trial.

Exclusion criteria

Patients aged below 18 and above 70 years; patients suffering from leprosy, psoriasis, pulmonary tuberculosis, paralysis, pregnant women and lactating mothers; patients with systemic disorders, namely uncontrolled hypertension, diabetes mellitus etc. were excluded from the trial.

Grouping and posology

In this present study, a total of 63 patients were registered, 60 patients completed the trial while 2 patients from group A and 1 patient from group B left against medical advice. Out of 63 patients, 60 patients were divided into 2 groups, namely A and B by simple randomization method.

The treatment protocol comprised regular purgation along with local application in group A and only local application in group B.

Group A: Nitya Virechana (regular purgation) along with Lepa (local application of paste)

In group A, patients were treated with *Nitya Virechana* by *Trivritta* powder (*Operculina turpethum* Linn.) in a dose of 12 g twice daily after meal with lukewarm water and *Aragvadha Patra Lepa* (paste of leaves of *Cassia fistula* Linn.) for local application in sufficient quantity as per area of lesions.[8]

Group B: Lepa (paste) (local application)

Group B patients were treated with *Aragvadha Patra Lepa* (paste of leaves of *Cassia fistula* Linn.) for local application in sufficient quantity as per area of lesions.

The total duration of treatment was 4 weeks with the regular follow-up at an interval of 15 days. All the patients were advised to take light and easily digestible diet and to avoid incompatible food.

Preparation of *Lepa* (paste)

Fresh leaves of *Aragvadha* (*Cassia fistula* Linn.) were taken and crushed with *Takra* (butter milk). The *Lepa* (paste) was applied in 2-mm thickness on the lesion. It was kept until it was completely dried.

Criteria for assessment of results

Both subjective and objective parameters were taken into consideration for assessment of drug efficacy.

Subjective and objective assessment

More emphasis was given on subjective parameters such as *Kandu* (itching), *Ruja* (pain) and *Daha* (burning sensation) and other parameters such as *Vaivarnya* (discoloration), *Srava* (discharge), *Rukshata* (dryness), *Raji* (lines/thickening of skin) and *Pidaka* (eruption) which were classified into grades. The improvement in grade was recorded at different levels.

Kandu (pruritus)
- 0 – No itching
- 1 – Mild/occasional itching
- 2 – Moderate frequent itching
- 3 – Severe frequent itching
- 4 – Very severe itching, which disturbs sleep and other routine activities.

Daha (burning)
- 0 – No burning sensation
- 1 – Mild type of burning sensation
- 2 – Moderate burning sensation
- 3 – Burning present continuously (severe) and even disturbing sleep.

Vaivarnya (discoloration)
- 0 – Nearly normal skin color
- 1 – Brownish-red discoloration
- 2 – Blackish-red discoloration
- 3 – Blackish discoloration.

Srava (oozing)
- 0 – No discharge
- 1 – Occasional discharge after itching
- 2 – Occasional oozing without itching
- 3 – Excessive oozing making clothes wet.

Rukshata (dryness)
- 0 – No line on scrubbing with nail dryness
- 1 – Faint line on scrubbing by nails
- 2 – Lining and even words can be written by nail
- 3 – Excessive *Rukshata* leading to *Kandu*
- 4 – *Rukshata* leading to crack formation.

Pidika (eruption)
- 0 – No eruption in the lesion
- 1 – Scanty eruptions in few lesions
- 2 – Scanty eruptions in at least half of the lesion
- 3 – All the lesions full of eruption.

Raji (thickening of skin)
- 0 – No thickening of skin
- 1 – Thickening of skin but no criss-cross marking
- 2 – Thickening with criss-cross marking
- 3 – Severe lichenification.

Ruja (pain)
- 0 – No pain
- 1 – Mild pain
- 2 – Moderate pain
- 3 – Severe pain.

Shotha (edema)
- 0 – No edema
- 1 – Present in <25% of the area
- 2 – Present in 25%–50% of the area
- 3 – Present in 50%–75% of the area
- 4 – Present in >75% of the area.

Investigation based assessment
Routine investigations, namely, total leukocyte count, differential leukocyte count, hemoglobin, erythrocyte sedimentation rate and lipid profile was done before and after treatment and difference was recorded.

Statistical analysis
All the calculations were calculated through "Graph Pad In Stat 3" software. The obtained data were analyzed statistically. Scored values of nonparametric parameters were analyzed by Wilcoxon signed-rank test within group and Mann–Whitney test was used for intergroup comparison. For intragroup comparison of investigational values, paired *t*-test, while for intergroup comparison, unpaired *t*-test was used.

Observations and Results
Maximum patients were in the age group of 36–45 years and 58.73% were males, 92.06% belonged to Hindu community, 82.53% were married, 28.57% had graduation level education, 30.15% patients were from service class, 70.36% were from urban area, 76.19% belonged to middle class and 71.42% were vegetarian. *Deha Prakriti* (body constitution) illustrated that maximum patients, i.e. 39.68% were of *Vata-Kapha Prakriti* and 74.60% patients had *Rajo-Tama Prakriti* (psychological make up) as a *Manasika Prakriti* (psychological makeup). Nearly 41.26% patients had chronicity of the disease for more than 1 year and 73.01% had a negative family history of eczema. Majority of patients (55.55%) were taking allopathic treatment and remaining 7.93% were taking *Ayurvedic* treatment. About 62.5% patients had irregular bowel habits. Almost 34.92% patients had sound sleep and 30.15% of the patients were in habit to take day sleep. About 50.79% patients were consuming *Lavana Rasa* (salty taste) and 41.26% were habituated to *Amla Rasa* (sour taste), predominant food articles. *Agni*-wise distribution showed that *Mandagni* (unpaired digestive system) was found in 50.79% of the patients. *Krura Koshtha* (constipated bowel habits which require laxative) was found in 42.85% patients.

Majority of the patients (79.36%) had a gradual onset of the disease. The 100% patients were in habit of taking *Viruddha Ahara* (incompatible diet) such as *Samyoga Viruddha* (incompatibility of combination), *Virya Viruddha* (incompatibility of potency) and *Samskara Viruddha* (incompatibility of mode of preparation) while 50.79% were taking *Matra Viruddha Ahara* (incompatibility of quantity). *Krama Viruddha Ahara* (incompatibility of sequence) was practiced by 49.20% of the patients. Rest 20.63% of the patients were taking *Vidhi Viruddha Ahara* (incompatibility of rules for eating).

Nearly 33.33% patients reported aggravation of the symptoms in summer season and 28.57% of the patients reported aggravation of the symptoms during rainy season. 56.66% patients were suffering from *Shushka* type of *Vicharchika* (dry eczema), whereas 43.33% were with *Sravi* type of *Vicharchika* (wet eczema) [Table 1].

All the patients (100%) had *Vaivarnya* (discoloration), *Kandu* (itching) and *Pidaka* (eruption). 73.33% patients had *Raji* (lining/thickening of skin), 56.66% patients had *Rukshata* (dryness), 43.33% patients had *Srava* (oozing), 40% patients had *Ruja* (pain) followed by 38.33% patients who had *Daha* (burning sensation) and 23.33% patients had *Shotha* (inflammation).

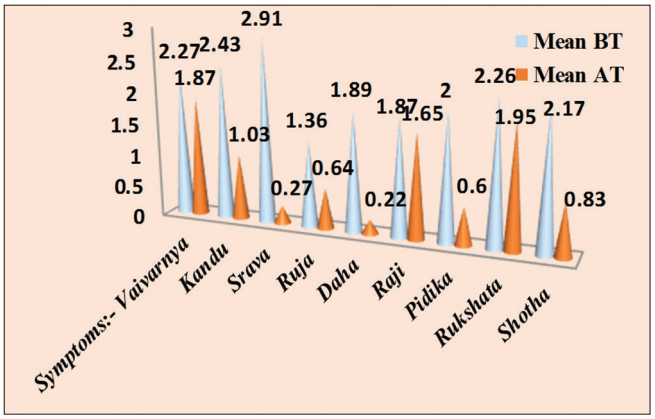
In group A, effect of trial drug *Trivritta* powder along with *Aragvadha Patra Lepa* on subjective parameters showed that there was a statistically extremely significant ($P < 0.0001$) improvement in itching, oozing, and eruption. Very significant improvement was found on burning ($P = 0.0078$) and significant improvement was found on discoloration ($P = 0.0156$), pain ($P = 0.0156$) and *Shotha* (inflammation) ($P = 0.0313$). No significant improvement was found on dryness ($P = 0.0625$) and *Raji* ($P = 0.0625$). In group B, trial drug *Aragvadha Patra Lepa* (paste) provided statistically significant improvement on discoloration ($P = 0.0313$), itching ($P = 0.0156$), oozing ($P = 0.0313$) burning sensation ($P = 0.0313$) and eruption ($P = 0.0156$) and no significant improvement on pain ($P = 0.500$), *Raji* (thickening of the skin) ($P = 0.125$), dryness ($P = 0.250$) and *Shotha* (inflammation) ($P = 0.0625$) [Table 2, Graphs 1, and 2].

On comparing the effect of the two groups, it was found that there was extremely significant difference ($P < 0.0001$) between the two groups in itching, oozing, burning sensation and eruption. Mean difference of group A was greater than group B. This implies that clinically group A was better than group B in relief on itching, oozing, burning and eruption [Table 3]. The percent relief in all the cardinal symptoms has been depicted in Graph 3.

Routine hematological and biochemical investigations were carried out in both groups before and after the treatment. However, no significant differences were found in laboratory parameters. From the above results, it is observed that the treatment of group A is proved to be better than treatment group B.

Discussion

Trivritta has *Madhura* (sweet), *Kashaya* (astringent),[9] *Katu* (pungent), *Tikta* (bitter),[10] *Rasa* (taste), *Katu Vipaka*



Graph 1: Effects of Group A on subjective parameters ($n = 30$). BT: Before treatment, AT: After treatment

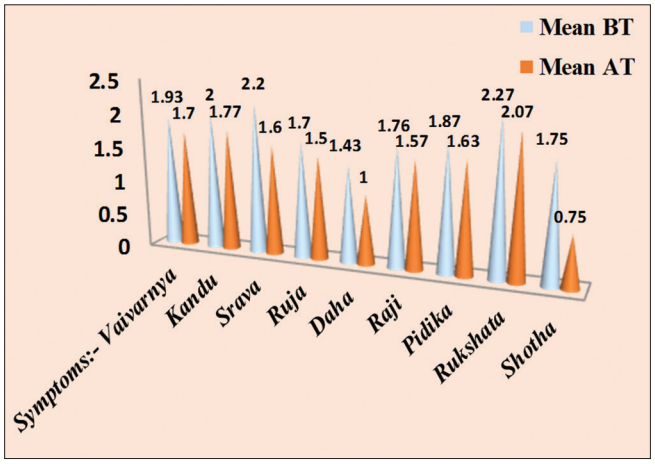
Table 1: General observations of patients in clinical trial ($n=63$)

Observations	Result found maximum in category of	Group A	Group B	Total (%)
Age	36-45 years	9	11	20 (31.74)
Gender	Male	24	13	37 (58.73)
Religion	Hindu	29	29	58 (92.06)
Marital status	Married	29	23	52 (82.53)
Education	Graduate	10	08	18 (28.57)
Occupation	Service	12	07	19 (30.15)
Habitat	Urban	28	22	50 (76.36)
Socioeconomic status	Middle	24	24	48 (76.19)
Diet pattern	Vegetarian	23	22	45 (71.42)
Family history	Negative	21	25	46 (73.01)
Sharirika Prakriti (Physical constitution)	*Vata-Kapha*	12	13	25 (39.68)
Manasika Prakriti (Physical constitution)	*Rajo-Tama*	21	26	47 (74.60)
Chronicity	1-2 years	16	10	26 (41.26)
Aggravating factors (seasonal)	Summer	10	11	21 (33.33)
Dominant *Rasa*	*Lavana Rasa*	16	16	32 (50.79)
Agni	*Mandagni*	12	20	32 (50.79)
Koshtha	*Krura*	16	11	27 (42.85)
Bowel habits	Constipated	14	14	28 (44.44)
Nidana	*Viruddha Ahara*	32	31	63 (100)
Type	*Sushka*	19	15	34 (56.66)

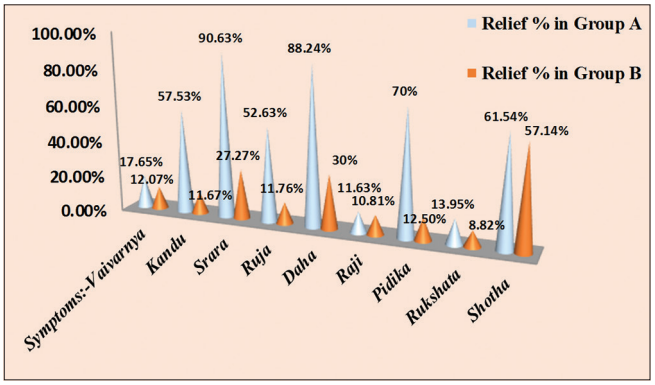
Table 2: Effect of therapy in subjective parameters in Group A and Group B (Wilcoxon matched paired single ranked test)

Variable	Group	Number of patients (*n*)	Mean		Mean difference	Percentage relief	Standard deviation (SD) (±)	Standard error (SE) (±)	*W*	*P*
			BT	AT						
Vaivarnya	Group A	30	2.27	1.87	0.40	17.65	0.86	0.16	28	0.0156
(discoloration)	Group B	30	1.93	1.70	0.23	12.07	0.50	0.09	21	0.0313
Kandu	Group A	30	2.43	1.03	1.40	57.53	0.81	0.15	406	<0.0001
(itching)	Group B	30	2.00	1.77	0.23	11.67	0.43	0.08	28	0.0156
Srava	Group A	11	2.91	0.27	2.64	90.63	0.67	0.20	66	0.001
(secretion)	Group B	15	2.20	1.60	0.60	27.27	0.83	0.21	21	0.0313
Ruja	Group A	14	1.36	0.64	0.71	52.63	0.83	0.22	28	0.0156
(pain)	Group B	10	1.70	1.50	0.20	11.76	0.42	0.13	3.0	0.5000
Daha	Group A	9	1.89	0.22	1.67	88.24	1.00	0.33	36	0.0078
(burning sensation)	Group B	14	1.43	1.00	0.43	30.00	0.51	0.14	21	0.0313
Raji	Group A	23	1.87	1.65	0.22	11.63	0.42	0.09	15	0.0625
(cracks)	Group B	21	1.76	1.57	0.19	10.81	0.40	0.09	10	0.1250
Pidika	Group A	30	2.00	0.60	1.40	70.00	0.56	0.10	465	<0.0001
(eruption)	Group B	30	1.87	1.63	0.23	12.50	0.43	0.08	28	0.0156
Rukshata	Group A	19	2.26	1.95	0.32	13.95	0.58	0.13	15	0.0625
(dryness)	Group B	15	2.27	2.07	0.20	8.82	0.41	0.11	6.0	0.2500
Sotha	Group A	6	2.17	0.83	1.33	61.54	0.52	0.21	21	0.0313
(edema)	Group B	8	1.75	0.75	1.00	57.14	1.07	0.38	15	0.0625

SD: Standard deviation, SE: Standard error, BT: Before treatment, AT: After treatment



Graph 2: Effects of Group B on subjective parameters (*n* = 30). BT: Before treatment, AT: After treatment



Graph 3: Percentage relief in subjective parameters in Group A and Group B (*n* = 60), BT: Before treatment, AT: After treatment

(post digestive effect) and *Ushna Virya* (hot potency), which is pacifying *Kapha* and *Pitta,* for it also easily and safely eliminates the body wastes, so it corrects vitiated *Pachaka Pitta* and helps in purifying *Raktadhatu* and thereby combating *Rakta Dushti* (blood impurity). *Pachaka Pitta* controls other *Pitta* in the body including *Bhrajaka Pitta* which is also vitiated in *Vicharchika*. This might have the reason of its action in getting relief in discoloration, itching, burning sensation and eruptions. *Katu* (pungent) and *Tikta* (bitter) *Rasa* of *Trivritta* does *Lekhana* (scraping) of *Pravriddha* (increased) *Mamsa Dhatu*. Excessive *Kleda* in *Vicharchika* is produced due to vitiated lymph, which is *Apa Mahabhuta Pradhana* (having dominancy of secretion). *Trivritta* has *Ruksha Guna* (dry quality) and hence, helps to dry up the discharge, which might be the reason of getting relief in *Srava* and *Pidika*. *Trivritta* does *Ama Pachana,* removes *Sanga* (obstruction) from *Srotasa* (channels) and does *Srotomukha Vishodhana* (opening of pores of channels). Due to this, *Vata* gets pacified and helps in *Samprapti Vighatana* (reversing of pathogenesis). *Trivritta* is also having *Krimighna* (antimicrobial) property.[11] *Krimi* is mentioned as a causative factor of *Kushtha*. Hence, it directly acts on *Vicharchika Kushtha* (eczema) (antibacterial activity[12] and anti-inflammatory activity[13]).

Acharya Sushruta has mentioned *Lepa* (paste) (local application) as the treatment of *Kushtha*, as it is a type of *Shodhana* (purification). *Lepa* (paste) pacifies provoked local *Dosha* by local application. Furthermore, *Acharya Charaka* has described *Lepa* (paste) as "*Sadyah Siddhi Karaka* (providing instant effect)."[14] Application of ingredients of *Lepa* (paste)

Table 3: Intergroup comparison between Group A and Group B on subjective parameters in the patients of eczema (Mann-Whitney test)

Variable	Group	Number of patients (*n*)	Mean difference	Standard deviation (SD) (±)	Standard Error (SE) (±)	Mann-Whitney U-statistic	*P*
Vaivarnya	Group A	30	0.40			428.50	0.6656
(discoloration)	Group B	30	0.23				
Kandu	Group A	30	1.40	0.95	0.17	96.500	<0.0001
(itching)	Group B	30	0.23				
Srava	Group A	11	2.64	0.67	0.20	7.500	<0.0001
(secretion)	Group B	15	0.60	0.83	0.21		
Ruja	Group A	14	0.71	0.83	0.22	46.000	0.1096
(pain)	Group B	10	0.20	0.42	0.13		
Daha	Group A	9	1.67	1.00	0.33	19.000	0.0035
(burning sensation)	Group B	14	0.43	0.51	0.14		
Raji	Group A	23	0.22	0.42	0.09	235.00	0.8401
(cracks)	Group B	21	0.19	0.40	0.09		
Pidika	Group A	30	1.40	0.79	0.14	66.500	<0.0001
(eruption)	Group B	30	0.23				
Rukshata	Group A	19	0.32	0.58	0.13	132.00	0.6384
(dryness)	Group B	15	0.20	0.41	0.11		
Sotha	Group A	6	1.33	0.52	0.21	17.000	0.3654
(edema)	Group B	8	1.00	1.07	0.38		

Figure 1: Before treatment status of skin lesion of patient in group A

Figure 2: After 15 days effect of *Trivritta* powder along with paste of *Aragvadha* leaves (group A) on the skin lesion

enters into *Romakupa* (hair follicle) and further gets absorbed through *Svedavahi Srotasa* (channels of sweat) and *Siramukha* (opening the skin pores) leading to desired effects. *Aragvadha Patra* has *Kushthagna* (anti-*Kushtha*), *Kandughna* (anti-itching), *Kriminashaka* (antimicrobial) and *Rakta Shodhaka* (blood purifier)[15] properties due to which is acts on *Vicharchika* by virtue of its antibacterial and antifungal activities,[16,17] anti-itching activity.[18] wound healing[19] and anti-inflammatory activity.[20,21] *Aragvadha Patra Lepa* (paste) along with *Takra* (butter milk) creates irritation and penetrates the skin. Therefore, it provides early improvement. In this way, the treatment of group A (*Nitya Virechana* by *Trivrit* along with *Aragvadha Patra Lepa* is proved to be better than group B (*Aragvadha Patra Lepa*) [Figures 1-3].

Conclusion

Trivritta along with *Aragvadha Patra Lepa* (paste) has provided significant results on itching, oozing, burning sensation, eruptions, discoloration, pain and inflammation in comparison to only *Aragvadha Patra Lepa* (paste). Hence, the combination action of *Trivritta* powder and *Aragvadha Patra Lepa* (paste) is effective to check the etiopathogenesis of eczema and thus it can be concluded that *Trivritta* powder along with *Aragvadha Patra Lepa* (paste of leaves of *Cassia fistula* Linn.) is safe and cost-effective treatment for *Vicharchika Kushtha* (eczema).

Figure 3: After treatment effect of *Trivritta* powder along with paste of *Aragvadha* leaves on the skin lesion (group A)

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Nil.

Conflicts of interest

There are no conflicts of interest.

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