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A Clinico- Pathological Study On Eosinophilic Patients And Its Management With *Haridra Khanda* And *Shirishadi Yoga*

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ABSTRACT

Introduction- Eosinophilia is a pathological condition often manifest cough, dyspnoea, allergic reaction, parasite infection and eczema etc. in human body. No such direct co-related disease is mentioned in *Ayurvedic* classes but may be aggravated due to *vata-kapha* predominant condition of the body.

Material and methods – 30 patents of Group A- (15 patients) and Group B- (15 patients) were registered from OPD and IPD of *Govt. Ayurvedic College & Hospital, Balangir*, presented with cough, sputum, dyspnea, aggravation after exposure to cold climate, itching, red rashes, dry – cracked skin etc. Which are similar with the diseases Bronchial Asthma and Dermatitis. Blood sample show increased eosinophilia condition in DC, AEC, and were diagnosed as case of Eosinophilic patients. After diagnosis they were trial with *Ayurvedic* formulations of *Haridra khanda* in Group A- and *Shirishadi yoga* in Group B, given 5grms each thrice a day for a period of 30 days with water respectively. The subjective and objective parameters of assessment were evaluated in 15th and 30th day from the day of initiation of trial up to 30 days in order to find the efficacy of both the trials by statistical paired 't' test.

Observation and results:- It has been observed that the trial drug Group-A patients is highly significant to reduce Eosinophil, A.E.C and ESR after 30 days of treatment with p-value <0.001.

Discussion and Conclusion- Eosinophilia is a ***Tridoshaja vyadhi*** with the main involvement *dosha- Kapha* and *Vata.* Eosinophilia is mostly due to hypersensitivity reactions induced by different allergens.. Both the drugs had improved by reducing the levels of eosinophil, AEC and ESR in patients but *Haridra khanda* inferred better result as compare to *Shirishadi yoga*. No side effect was noticed during clinical study *Haridra khanda*, *Shirishadi yoga.*

KEYWORDS - Bronchial asthma, Dermatitis, *Haridra khanda*, *Shirishadi yoga.*

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INTRODUCTION

Eosinophils are bone marrow–derived cells of the granulocyte lineage. In normal value it is responsible for detoxification, antigen presentation, on- going immune responses, helminthic and parasite clearance through degranulation, disintegration and removal of foreign proteins. Also, it destroys the nerve fibres particularly, the myelinated nerve fibres [1]. Usually it accounts for less than 5% of the circulating leukocytes. When it exceeds the normal value it is called as Eosinophilia[2]. The common causes to increase eosinophils are Allergic reactions, Asthma, Eczema, Hay fever and Parasitic Infections etc[3]. Eosinophilia causes different signs and symptoms in individual that may range from mild malaise to life threatening. It is found that even after completion of full dose of modern medicines, the eosinophil count decreases but again it relapses after few days by manifesting clinical features[4]. So for better and safety treatment *Ayurvedic* herbal preparations *Haridra khanda*[5] and *Shirishadi yoga* are selected for present comparative research protocol in Bronchial Asthma (Tamaka shwasa), and Chronic allergic skin disorder (Anurjata Janya Charma Roga)[6].

AIM AND OBJECTIVE OF THE STUDY-

1. To review the literature on Eosinophilia related to *Ayurveda* Classics.
2. To evaluate the clinical efficacy of *Haridra khanda* and *Shirishadi yoga*.

MATERIALS AND METHODS-

Selection of Patients

The total 30 patients (Group A- 15, Group B- 15) were selected by a special proforma covering demography both Subjective and Objective parameters from OPD and IPD of Govt. *Ayurvedic College and Hospital, Balangir and Saradesweri Govt. Ayurvedic Hospital Balangir.* The consent of the patients were also taken before clinical trial.

Inclusion criteria

Patients age between 15-65 years of both sexes. Patients with more than normal eosinophilic level in DC (>5%), AEC (>400/c.mm) and CBC (>5.0X10^8/l) were selected for this study.

Exclusion criteria

Patient having Endocrinal disorders, Tumours, Cancer, Ulcerative colitis, patient taking immunosuppressive medicines, pregnant women & lactating mother were excluded from this study.

Criteria for Investigations

DC, ESR, and Absolut Eosinophilic Count (AEC) were investigated initially and follow up periods.

Selection of drug

Two medicines *Haridra khanda* (Bhaisajya *Ratnavali, Sheetpitta Udarda Kotha roga adhikara, Sloka No- 13 to 17)* and *Shirishdi yoga* (*Anubhuta Yoga)* were taken for clinical trial. The drugs of both medicines were identified by the experts of Dept. of *Dravyaguna and Rasashastra & Bhisajya Kalpana* which were approved by DRC and IEC of College and Sambalpur University. Medicines were prepared as per GMP certified method in Mini Pharmacy of College under the supervision of expert of *Rasashastra and Bhisajya Kalpana.*

Dose - *Haridra khanda* and *Shirishadi yoga* 5 gm thrice day after food with *Sitajala* each separately in Group A and Group B respectively.

CTRI Number- Pending (submitted for approval)

IEC Number- 968 of dated 26/04/2018

Assessment Criteria

The Subjective parameters like, cough, sputum, dyspnea, aggravation after exposure to cold climate, itching, swelling, and dry crack skin, red rashes[7], and Objective parameter like, DC, ESR, Absolute Eosinophilic Count (AEC) were assessed by the grading score from 0 to 3 according to the severity of diseases and favourable shift to back.

The overall assessment were done considering the percentage relief of both parameters and statistical evaluation.

OBSERVATION AND RESULTS-

Different clinical features were observed during clinical study. (Table no. 01)

Table no. 01; Total Patients as per diseases and clinical features. (n=30)

Disease	**Sign/ Symptom**	**No. of patients**	**%**
Bronchial Asthma	Cough	25	100
	Sputum	16	64
	Dyspnoea	24	96
	Aggravation after exposure to cold climate	19	76
Allergic dermatitis	Itching	5	100
	Red rashes	5	100
	Dry-Crack skin	5	100
	Swelling	2	40

In this study eosinophilic diseases like *Tamaka shwasa (Bronchial Asthma), and Anurjata janya charma roga* (Allergic Dermatitis)[8] were taken into consideration. Table no.01

Table no.02; Showing the EOSINOPHIL before and after treatments in patients(n=30)

Range in %	Group A				Group B			
	BT		AT		BT		AT	
	f	%	f	%	f	%	F	%
<6	0	0	10	66.67	0	0	8	53.33
6-10	0	0	5	33.33	0	0	7	46.67
11-15	14	93.33	0	0	10	66.67	0	0
16-20	1	6.67	0	0	5	33.33	0	0

In Eosinophil count, 10 (66.67%) and 08 (53.33%) patients in Group – A and Group- B respectively were < 6% after 30 days treatment with both trial drugs. Table no.02

Table no. 03; Showing the AEC before and after treatment in patients. (n=30)

Range in cells/µl	Group A				Group B			
	BT		AT		BT		AT	
	f	%	f	%	f	%	F	%
≤ 500	0	0	11	73.33	0	0	10	66.67
501-1000	0	0	4	26.67	4	26.67	5	33.33
1001-1500	14	93.33	0	0	9	60	0	0
>1500	1	6.67	0	0	2	13.33	0	0

In AEC, 11 (77.33%) and 10 (66.67%) patients in Group – A and Group- B were < 500/Cumm respectively after 30 days treatment with both trial drugs. Table no. 03

Table no. 04; Showing the ESR before and after treatment in patients. (n=30)

Range in mm	Group A				Group B			
	BT		AT		BT		AT	
	F	%	f	%	f	%	F	%
<20	0	0	15	100	0	0	15	100
21-31	0	0	0	0	0	0	0	0
31-40	6	40	0	0	7	46.67	0	0
41-50	6	40	0	0	6	40	0	0
51-60	3	20			2	13.33		

The observation of ESR after 30 days of treatment indicated that patients in both groups showed below 20mm in 1st hour which was indicated the positive response to treatment. Table no. 04

Table no. 05; Showing the statistical analysis of objective parameters. (n=30)

Objective Parameters	Group	Treatment time	Mean ± SD	df	SE	t-valSSue	p- value
Eosinophil	**Group-A**	BT	13.40 ± 1.40				
		AT	5.20 ± 1.52	14	0.518	15.82	< 0.001
	Group-B	BT	14.73 ± 1.87				
		AT	5.40 ± 1.59	14	0.607	15.38	< 0.001
AEC	**Group-A**	BT	1227.40 ± 168.05				
		AT	433.80 ± 99.28	14	41.506	19.12	< 0.001
	Group-B	BT	1240.00 ± 268.68				
		AT	433.67 ± 127.27	14	67.655	11.92	< 0.001
ESR	**Group-A**	BT	43.00 ± 7.81				
		AT	17.33 ± 1.72	14	1.767	14.53	< 0.001
	Group-B	BT	41.53 ± 7.18				
		AT	15.07 ± 2.79	14	1.684	15.71	< 0.001

Among the objective parameters the eosinophil count in both differential count method and AEC method were marked decreased in Group A as regards to Group B but statistically significant in both groups. The alleviated

ESR were reduced in both groups indicating improvement in the chronicity of the diseases which was also statistically significant. Table no. 05

Table no. 06; Showing the statistical analysis of sing & symptoms of bronchial asthma. (n=30)

Sign and symptoms	Group	Treatment time	Mean ± SD	Df	SE	t- value	p- value
Cough	Group-A	BT	1.62 ± 0.65				
		AT	0.38 ± 0.51	12	0.12	10.12	< 0.001
	Group-B	BT	1.50 ± 0.67				
		AT	0.42 ± 0.51	11	0.08	13	< 0.001
Sputum	Group-A	BT	1.31 ± 0.95				
		AT	0.54 ± 0.52	12	0.17	4.63	< 0.001
	Group-B	BT	0.92 ± 0.9				
		AT	0.25 ± 0.45	11	0.19	3.55	< 0.05
Dyspnoea	Group-A	BT	2.00 ± 0.41				
		AT	0.54 ± 0.52	12	0.18	7.98	< 0.001
	Group-B	BT	1.50 ± 0.67				
		AT	0.42 ± 0.51	11	0.19	5.61	< 0.001
Aggravation after exposure to cold climate	Group-A	BT	1.77 ± 1.09				
		AT	0.31 ± 0.48	12	0.24	6.01	< 0.001
	Group-B	BT	1.42 ± 1.00				
		AT	0.33 ± 0.49	11	0.26	4.17	< 0.05

Table no. 07; Statistical analysis of sign & symptom of dermatitis.(n=30)

Sign and symptoms	Group	Treatment time	Mean ± SD	Df	SE	t- value	p- value
Itching	Group-A	BT	2.00				
		AT	0.00	0	0	0	>0.05
	Group-B	BT	1.67 ± 0.58				
		AT	0.33 ± 0.58	2	0.33	4.00	> 0.05
Red rashes	Group-A	BT	2.00				
		AT	0.50 ± 0.71	1	0.5	3.00	> 0.05
	Group-B	BT	1.67 ± 0.58				
		AT	0.67	2	0.33	1.00	> 0.05
Dry and crack skin	Group-A	BT	2.50				
		AT	0.50	0	0	0	>0.05
	Group-B	BT	2.00				
		AT	0.67 ± 0.58	2	0.33	4.00	> 0.05
Swelling	Group-A	BT	1.00 ± 1.41				
		AT	0.00	1	1	1.00	> 0.05
	Group-B	BT	0.67 ± 1.15				
		AT	0.00	2	0.67	1.00	> 0.05

The clinical sign and symptoms of both Group A and B patients in Bronchial Asthma were improved after 30 days treatment but better result was observed in Group A patients which was statistically significant. The statistical evaluations of clinical features of demography were not significant but clinically improvement was noticed. Table no. 6-7

Table no. 08; Showing overall effect of Result in Group-A and Group-B for Bronchial Asthma.(n=30)

Clinical Assessment	Group-A		Group-B	
	F	%	F	%
Completely remission	0	0	0	0
Markedly Improved	8	61.54	8	66.67
Moderate Improved	5	38.46	4	33.33
Mild Improved	0	0	0	0
Unsatisfactory	0	0	0	0

In Bronchial Asthma out of 13 patients, 08 (61.54 %) patients were markedly improved whereas 05(38.46%) were moderately improved. Table no. 08

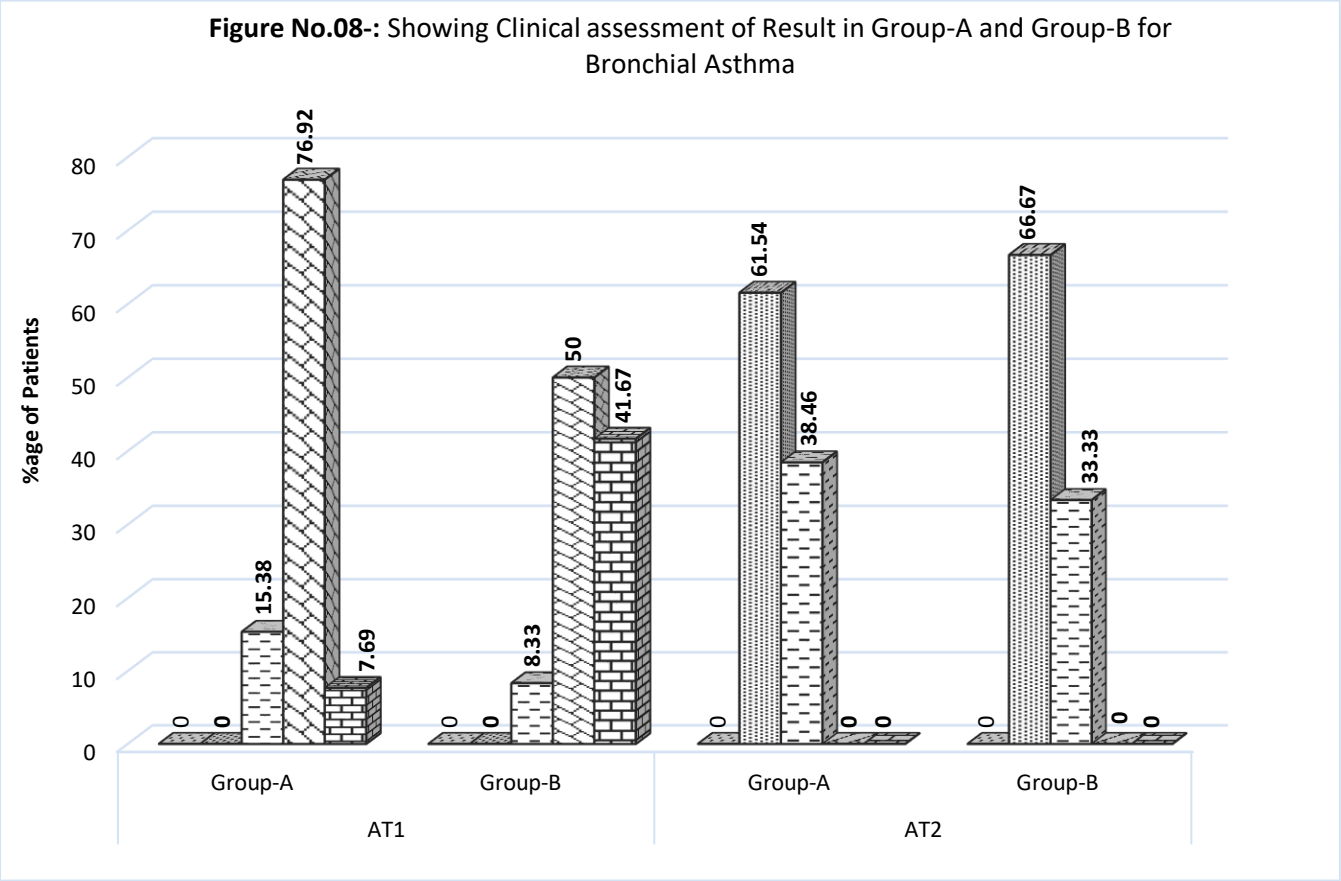

Figure No.08-: Showing Clinical assessment of Result in Group-A and Group-B for Bronchial Asthma

Table no. 09; Showing clinical assessment of Result in Group-A and Group-B for allergic dermatitis. (n=30)

Clinical Assessment	Group-A		Group-B	
	F	%	F	%
Completely remission	0	0	1	33.33
Markedly Improved	2	100	0	0
Moderate Improved	0	0	2	66.67
Mild Improved	0	0	0	0
Unsatisfactory	0	0	0	0

In Allergic Dermatitis improvement in all symptoms were observed and 02 patients were markedly improved.

Table no. 09

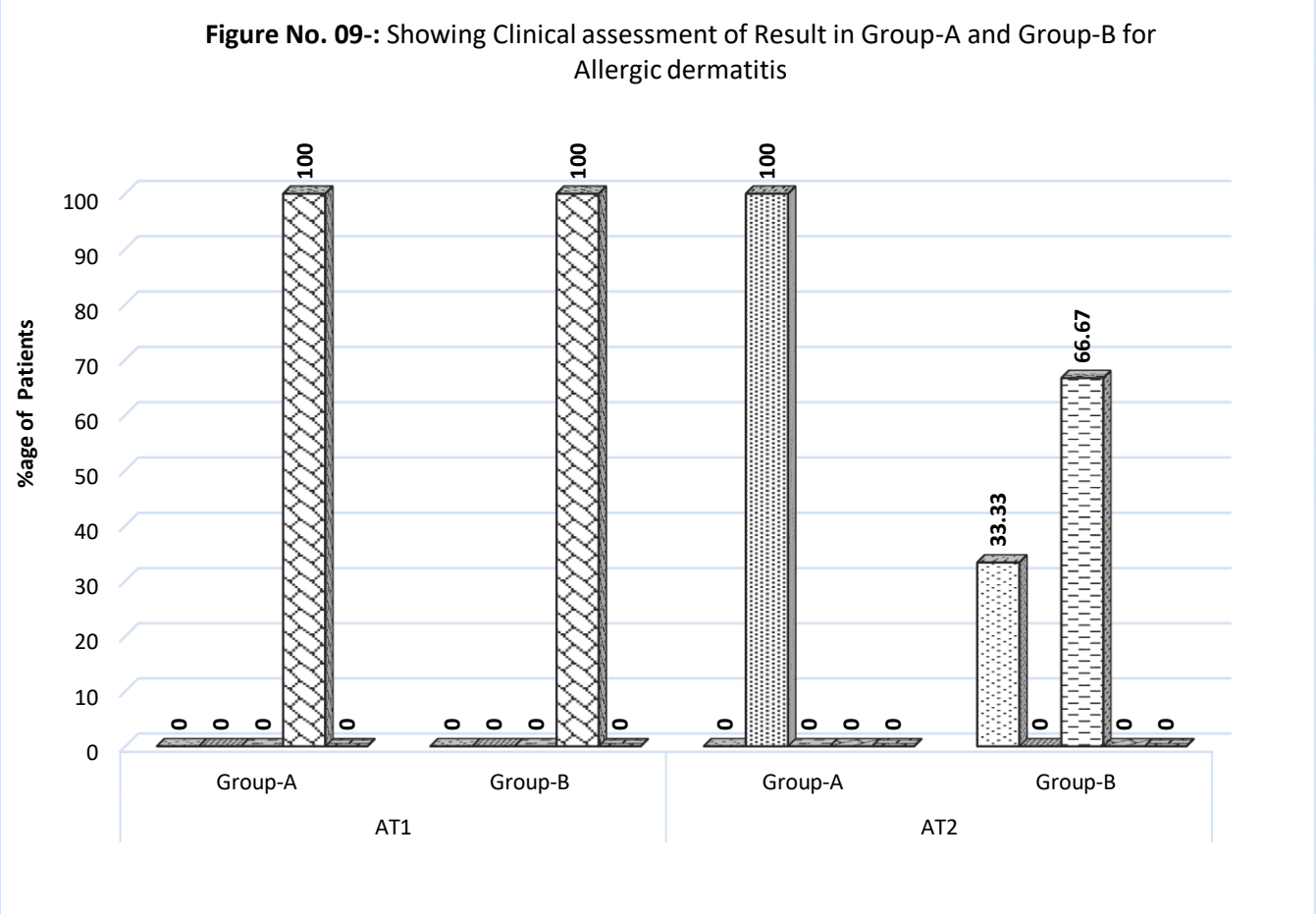

Figure No. 09-: Showing Clinical assessment of Result in Group-A and Group-B for Allergic dermatitis

Table no. 10 Effect of trial medications group- A vs group- B.(n=30)

improvement	**GROUP - A**		**GROUP - B**	
	No of patients	%	No of patients	%
Complete remission	0	0	01	6.67
Marked improvement	08	53.33	08	53.33
Moderately improvement	07	46.67	06	40.00
Mild improvement	00	00	00	00
No improvement	00	00	00	00
Total	15	100	15	100

It had been observed that as per after treatment procedures of both Groups, 01 patient from Group B was completely recovered, 08 patients from both Groups markedly improved, and moderately improved were seen in 07 and 06 patients in Group A & B respectively. Table no. 10

Table no. 11; Demography incidence of registered patients. (n=30)

Criteria	**Maximum %**	**Category**
Age	66.33%	31-40 years
Sex	53.33%	Male
Religion	100%	Hindu
Education status	80%	Graduate
Occupation	33.67%	Service
Socio- Economical status	73.33%	Middle class
Habitat	90.33%	Rural area
Marital status	80%	Married
Dietary habit	96.67%	Non-vegetarian
Habit / Addiction	70%	Taking tea
Mode of onset	60%	Insidious
History of past illness	70%	Allergens
Family history	73.33%	Genetic
Treatment history	63.33%	Persists
Sleeping habit	66.67%	Normal sleep
Urination and bowel habit	100%	Normal

It had been observed on demography incidence that (Table no. 11) mostly young male persons educated residing in rural areas, middle class, married, non-vegetarians expose to allergen and having family history of chronic cold were prone to eosinophilia.

Table no. 12; Incidence of *dashavidha- pariksha prakriti* of registered patients. (n=30)

Criteria	**Maximum %**	**Category**
Prakriti	73.33%	*Vatakaphaja*
Vikriti	90%	*Madhyama- vastha*
Sara	80%	*Madhyama-sara*
Samhanan	66%	*Madhyama*
Praman	86.67%	*Madhyama sharira*
Satwa	86%	*Madhyama*
Satmya	86%	*Madhyama*
Ahar Shakti	80%	*Madhyama ahar Shakti*
Vyayam Shakti	60%	*Madhyama vyayama Shakti*
Desha	100%	*Jangal desh*

Individual *dashavidha- pariksha* was covered and observed that (Table no.12) *the Vata- Kaphaja* patients having *madhyama – sara- samhanan- praman- satwa- satmya- ahar shakti and vyayam Shakti* were manifested with eosinophilic condition.

Table no. 13; Properties and action of drugs of Haridra Khanda.

Name	*Rasa*	*Guna*	*Veerya*	*Vipaka*	*Doshakarmata*
Haridra	*Tikta, Ruksha*	*Laghu, Ruksha*	*Ushna*	*Katu*	*Kaphapittashamaka*
Go-Dugdha	*Madhura*	*Snigdha, Sheeta, Guru*	*Sheeta*	*Madhura*	*Vatapittahara*
Go- Ghrita	*Madhura*	*Snigdha, Mridu, Guru*	*Sheeta*	*Madhura*	*Vatapittashamaka*
Sharkara	*Madhura*	*Snigdha, Sheeta*	*Sheeta*	*Madhura*	*Vatapittashamaka*
Shunthi	*Katu*	*Laghu, Snigdha*	*Ushna*	*Madhura*	*Vatakaphashamaka*
Pippali	*Katu*	*Laghu, SnigdhaTikshna*	*Anushnasheeta*	*Madhura*	*Kaphavatashamaka*
Maricha	*Katu*	*Laghu, Ruksha, Tikshna*	*Ushna*	*Katu*	*Kaphavatashamaka*
Twak	*Katu, Tikta, Madhura*	*Laghu, Ruksha, Tikshna*	*Ushna*	*Katu*	*Vatakaphashamaka*
Ela	*Katu, Madhura*	*Laghu, Ruksha*	*Sheeta*	*Madhura*	*Tridoshashamaka*
Trivrita	*Katu, Tikta*	*Laghu, Ruksha, Tikshna*	*Ushna*	*Katu*	*Pittakaphashamaka*
Vidanga	*Katu, Kasaya*	*Laghu, Ruksha, Tikshna*	*Ushna*	*Katu*	*Kaphavatashamaka*
Amalaki	*Amla, kasaya*	*Ruksha, Laghu*	*Sheeta*	*Madhura*	*Tridoshahara*
Vibhitaki	*Kasaya*	*Ruksha, Laghu*	*Ushna*	*Madhura*	*Tridoshahara*
Haritaki	*Kasaya, Madhura, Amla,Katu, Tikta*	*Laghu, Ruksha*	*Ushna*	*Madhura*	*Tridoshahara*
Nagkesara	*Kasaya, Tikta*	*Ruksha, Laghu*	*Ushna*	*Katu*	*Kaphapittashamaka*
Musta	*Tikta, Kasaya, Guru*	*Laghu, Ruksha*	*Sheeta*	*Katu*	*Pittakaphashamaka*
Tejapatra	*Tikta, Katu*	*Laghu, Ruksha*	*Ushna*	*Katu*	*Kaphavatahara*
Loha bhasma	*Tikta, Madhura, Kasaya*	*Ruksha, Guru*	*Sheeta*	*Madhura*	*Kaphapittashamana*

The drugs of *Haridra Khanda* (Table no.12) were the predominance of *katu, tikta , madhura and kashaya rasa*. *Katu, tikta, kashaya rasa* acts on the vitiated *kapha and* the vitiated *vata* was controlled by *madhura rasa*. Most of the components had *laghu , ruksha guna* followed by *snigdha, tikshna and guru guna*. Thus the vitiated *kapha* was alleviated by the *laghu and ruksha guna* and the vitiated *vata* was alleviated by virtue of *snigdha, tikshna and guru guna*. The drugs predominantly having *ushna veerya* which was both *vata and kapha shamaka*. The drugs had *madhura vipaka* as a result of which the *vata and pitta dosha* were alleviated. Most of the components of the drug were predominantly *vata-kapha shamaka and pitta-kapha shamaka* by virtue of which the disease was treated successfully. Most of the components were having deepan-pachan property. Thus the prepared medicine was potential to correct the *agni* i.e. *Jatharagni* and *Dhatwagni*. They helped in smooth management of body metabolism. Ultimately it helped in proper nourishment of *dhatus* and alleviates *ama*. Table no. 13

Table no. 14; Showing Pharmacodynamics of drugs of Shirishadi yoga

Name	*Rasa*	*Guna*	*Veerya*	*Vipaka*	*Doshakarmata*
Shirisha	*Kasaya, Tikta, Madhura*	*Laghu, Ruksha, Tikta*	*Anushna sheeta*	*Katu*	*Tridoshahara*
Ashwagandha	*Tikta, Kasaya*	*Laghu, Snigdha*	*Ushna*	*Madhura*	*Kaphavata-shamaka*
Yasthimadhu	*Madhura*	*Guru, Snigdha*	*Sheeta*	*Madhura*	*Vatakapha-shamaka*
Nimba	*Tikta, Kasaya*	*Laghu, Ruksha*	*Sheeta*	*Katu*	*Pittakapha-shamaka*
Pippali	*Katu*	*Laghu, Snigdha, Tiksha*	*Anushna-sheeta*	*Madhura*	*Kaphavata-shamaka*
Parijata	*Tikta*	*Laghu, Ruksha*	*Ushna*	*Katu*	*Kaphavata-shamaka*

Rasa panchaka analysis of *Shirishadi yoga* showed the drug predominantly posed *tikta, kasaya* and *madhura rasa. Tikta, kashaya rasa* helped in alleviating vitiated *kapha and madhura* rasa helps in alleviating *vata dosha*. Most of the components posed *laghu, ruksha, snigdha and tikshna guna. Laghu, ruksha and tikshna guna* helped in alleviating *kapha* and *snigdha guna* helped in alleviating *vata dosha*. The drugs had *anushna sheeta virya* which acted both on *vata and kapha dosha*. The components of *shirishadi yoga* also had *dipana pachana* property which corrected the *agni* and alleviates *ama*. Table no. 14

DISCCUSION

Eosinophilia represents an increased number of eosinophils in the blood exceeding the normal value >500/µl or >5 % in differential leucocyte count. Some of common causes are Allergic reactions, Asthma, Eczema, Hay fever and Parasitic Infections etc. Eosinophilia manifests with different signs and symptoms in different persons that may range from mild malaise to life threatening.

In this study eosinophilic diseases like *Tamaka shwasa* (Bronchial Asthma), and *Anurjata janya charma roga* (Allergic Dermatitis)[9] were taken into consideration.

The literary reviews were discussed with *Nidana* (aetiology), *Samprapti* (Pathogenesis), Classifications and its probable modern co-related diseases narrated in modern classics. Here all the diseases were associated with *asatmya* response of the body to allergens which trigger the hypersensitivity reactions ultimately lead to eosinophilic conditions.

CONCLUSION

Both *Haridra khanda* and *Shirishadi yoga* were provided significant result in improving signs & Symptoms and decreased the levels of eosinophil, AEC & ESR in patients. Both the drugs are effective in controlling the sign and symptoms of both the diseases. Hence these drugs were proved to be efficient anti eosinophillic medicines. Present study was carried out with certain limitations like less sample and less diseases. Forth coming researchers may pursue further study in a large sample size over a period of longer duration and including more diseases with eosinophilia. No side effect was noticed during clinical trial.

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