

Management of *Vataja abhishyanda* (Allergic conjunctivitis) with Gutika anjana and Punarnavadi eye drops: A comparative clinical study

Research Article

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Abstract

Background: *Vataja Abhishyanda* is characterized by *Toda* (Pricking pain), *Sangharsha* (foreign body sensation), *Achchasruta* (watery discharge), *Alpa Shopha* (mild chemosis), *Vishushka Bhava* (feeling of dryness), *Parushya* (roughness) etc which are very similar to the most of signs and symptoms of the Allergic Conjunctivitis. It is one of the most common type of eye allergy and is widely experienced by global population. Aims and Objective: . To evaluate and compare the efficacy of *Punarnavadi* eye drops and *Gutika Anjana* in the management of *Vataja Abhishyanda*(Allergic conjunctivitis). Materials and methods: Total 104 patients diagnosed with symptoms and signs of *Vataja Abhishyanda* were selected from the outpatient department of *Shalaky tantra*. The selected patients were assigned randomly into two groups, group A (*Punarnavadi* eye drop) having 51 and group B (*Gutika Anjana*) having 50 patients. Duration of treatment was 8weeks with follow up for one month after the trial. Result: In Group A, 96.08% got complete relief after the completion of treatment, 03.92% got marked improvement. In Group B, 98% got complete relief after the completion of treatment, 2% got marked improvement. Conclusion: *Gutika Anjana* shows better relief in all sign and symptoms on the basis of percentage. The reason may be *Anjana* has maximum absorption due to more contact of time with the tissue which is responsible for better bioavailability.

Key Words: Allergic conjunctivitis; *Gutika Anjana*; *Punarnavadi eye drop*; *Vataja Abhishyanda*.

Introduction

Vataja Abhishyanda is characterized by *Toda* (Pricking pain), *Sangharsha* (foreign body sensation), *Achchasruta* (watery discharge), *Alpa Shopha* (mild chemosis), *Vishushka Bhava* (feeling of dryness), *Parushya* (roughness) etc which are very similar to the most of signs and symptoms of the Allergic Conjunctivitis. So, *Vataja Abhishyanda* can be correlated with Allergic Conjunctivitis. Allergic conjunctivitis is the most common type of eye allergy and is widely experienced by global population. It has an equal distribution more or less throughout the world, without any exception to the developed and under developed countries(1). The epidemiology of ocular allergic diseases has not been sufficiently investigated to date. In general, ocular allergy is estimated to affect 5-22% of the population, depending on the geographical setting and on the age of the population(2).

General lines of treatment explained by our *Acharya* for *Abhishyanda* are: *Langhana*, *Tikta Anna Sewana*, *Alepan*, *Swedana*, *Siravedhana*, *Virechana*, *Anjana* and *Aschyotana*(3). Among these *Anjana* and

Ashchyotana are simple, safer, most inexpensive procedure, which are indicated in eye diseases.

In *Sushruta Samhita Uttarantra Vataabhishyanda Pratishedha*(Su.Utt.9/15), *Gutika Anjana* is indicated for *Vataja Abhishyanda*. It contains *Gairika*, *Saindhava*, *Pippali* and *Shunthi* . All the drugs have *Madhura Vipaka* and *Snigdha Guna* and most of the drugs are *Vatashamaka* in properties. So, this formulation is selected for current topic.

Punarnavadi Eye Drops(*Anubhoota Yoga*) containing drugs *Punarnava Moola*, *Mishri*, *Sphatika* and *Saindhava* has known for its efficacy to manage eye conditions like redness, pain, watering, foreign body sensation etc. which are the complaints of the disease *Abhishyanda*. The name *Punarnavadi* Eye Drops is given as the *Punarnava* is contributing as main drug.

Aim of the study

To evaluate and compare the efficacy of *Punarnavadi* eye drops and *Gutika Anjana* in the management of *Vataja Abhishyanda*(Allergic conjunctivitis).

Materials and Methods

The patients attending the O.P.D. and I.P.D. of Dept.of *Shalakyatantra*, I.P.G.T. & R.A., G.A.U., Jamnagar and referred from other O.P.D were selected irrespective of their sex, religion, caste, occupation etc. Informed and written consent were taken from all the patients.

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The study was open labelled randomized comparative clinical trial. The patients were selected by Computerized simple random sampling method.

The diagnosis of *Vataja Abhishyanda* (Allergic Conjunctivitis) was done on the basis of clinical picture as per the Modern and *Ayurvedic* texts. For this purpose a special research proforma was prepared as per the modern and *Ayurvedic* view. After taking ophthalmic and systemic history, a detailed conjunctival examination was carried out by slit lamp examination before and after study. The study was approved by Institutional ethics committee letter no. PGT/7 A/Ethics/2017-18/3042 dated 19/02/18. The Clinical trial was registered under CTRI with CTRI No. CTRI/2018/02/012159 registered on 26/02/2018.

Statistical analysis

On the basis of grading scores the effect of therapy in subjective parameters was assessed with the help of Wilcoxon signed rank test and objective parameters were assessed with paired 't' test. The comparison was done between the groups in subjective parameters with Mann Whitney test and objective parameters with unpaired 't' test. The results obtained were considered highly significant for $P < 0.001$, significant for $P < 0.05$ and insignificant for $P > 0.05$.

Inclusion criteria

1. Patients willing for the treatment.
2. Patients between 18 to 50 years of age irrespective of sex, caste and religion.
3. Patients presenting with signs and symptoms like *Toda* (Pricking pain), *Stambha* (Stiffness of lids), *Sangharsha* (Foreign body sensation), *Parushya* (Roughness), *Shiroabhitapa*(Headache), *Vishushka Bhava* (Dryness - feeling), *Shishirasruta* (Cold lacrimation), *Achchasruta* (clean/ watery discharge), *Alpa Shopha* (Mild chemosis) and on examination hyperaemia, swelling, follicle and papillae in palpebral and hyperaemia and chemosis in bulbar conjunctiva was diagnosed as *Vataja Abhishyanda* (Allergic Conjunctivitis).

Exclusion criteria

1. Patients below 18 years and above 50 years
2. Patients having complications of corneal involvement like marginal corneal ulcer, dacryocystitis, trachoma, keratoconjunctivitis etc., other types of allergic conjunctivitis like giant papillary conjunctivitis,etc., Infective conjunctivitis, non-specific systemic infections, patients of ocular trauma, uncontrolled diabetes mellitus, patients having genetic predisposition to allergy.

Study design

The selected patients were assigned randomly into two groups (A &B), group A having 51 and group B having 50 patients. Each group was subjected to the treatment in the following method. [Table 3]

Table 1: Contents of Punarnavadi eye drops (Anubhoota Yoga)

No.	Drug	Botanical Name	Part used	Proportion
1	<i>Punarnava</i>	<i>Boerhavia diffusa</i> Linn.	Root	1 Part
2	<i>Mishri</i>	Sugar(English name)	-	1/2 Part
3	<i>Sphatika</i>	Alum(English name)	-	1/2 Part
4	<i>Saindhava</i>	<i>Sodii chloridum</i>	-	1/2 Part

Table 2: Contents of Gutika Anjana (Su.Ut.9/15)

No.	Drug	Botanical Name	Part used	Proportion
1	<i>Shunthi</i>	<i>Zingiber officinale</i> Roxb.	Rhizome	8 Part
2	<i>Pippali</i>	<i>Piper longum</i> Linn.	Root	4 Part
3	<i>Saindhava</i>	<i>Sodii chloridum</i>	-	2 Part
4	<i>Gairika</i>	Ochre(English name)	-	1 Part

Table 3: Posology

	Group A: <i>Punarnavadi</i> eye drops (<i>Anubhoota Yoga</i>)	Group B: <i>Gutika Anjana</i> (<i>Su.Ut.9/15</i>)
Form	<i>Arka</i>	<i>Anjana</i> with water
Dose	2 drops 4 times per day both eyes	60mg per day in two divided doses both eyes
Method of application	<i>Kaninaka Sandhi</i> (Nasal canthus)	applying from nasal to temporal canthus.
Contact period	3-5 minutes	till watering and irritation subsides
After application	Mopping by sterile cotton	<i>Netra Prakshalana</i> (eye wash) with distilled water
Route of Administration	Topical (<i>Netra</i>)	Topical (<i>Netra</i>)
Duration	8 weeks	8 weeks
Time	Morning, afternoon, evening and at bed time	Morning and evening

Follow up: Follow up study was done after 1 month after completion of trial.

Assessment of therapy

Grading and scoring system was adopted for assessing the following clinical feature before the commencement of trial and after completion of trial.

Subjective assessment criteria

<i>Toda</i> (Pricking pain)	
Absent – no <i>Toda</i>	0
Occasionally present and very mild	1
Intermittently present and mild	2

Frequently present and moderate - not disturbing the routine work	3	Achhasruta (clean/ watery discharge)	
Present almost all the time – severe - disturbing routine activities	4	Absent - no <i>Achhasruta</i>	0
Stambha (Stiffness of lids)		Mild and occasionally need to wipe	1
Absent – no <i>Stambha</i>	0	Mild but intermittently need to wipe	2
Occasionally feeling of <i>Stambha</i> of lids	1	Moderate and need to wipe frequently	3
Intermittently and mild feeling of <i>Stambha</i> of lids	2	Severe and need to wipe almost all the time.	4
Frequently and moderate feeling of <i>Stambha</i> of lids	3	Alpa Shopha (Mild chemosis)	
Feeling of <i>Stambha</i> of lids and Eye ball almost all the time.	4	Absent - no <i>Alpa Sopha</i>	0
Sangharsha (Foreign body sensation)		Puffy lids with discrete mild <i>Alpa Sopha</i> visible on slit lamp examination	1
Absent - no <i>Sangharsha</i>	0	Puffy lids with discrete mild <i>Alpa Sopha</i> visible on touch light examination	2
Occasionally present, mild and not troublesome	1	Swelling of lids visibly evident <i>Alpa Sopha</i> .	3
Intermittently present mild and troublesome	2	Swollen eye lids / ballooning of conjunctiva.	4
Frequently present, moderate and troublesome	3	Jantunam Iva Sarpanam (Crawling sensation)	
Present almost all the time, severe and continuously troublesome	4	Absent – no feeling of <i>Jantunam Iva Sarpanam</i>	0
Parushya (Roughness)		Occasional feeling of <i>Jantunam Iva Sarpanam</i>	1
Absent- no <i>Parushya</i>	0	Intermittent feeling of <i>Jantunam Iva Sarpanam</i>	2
Visible dryness of lid skin with no <i>Parushya</i> , mild (fade) dull white streak after scratching on to lid skin, disappearing after sometime.	1	Frequent feeling of <i>Jantunam Iva Sarpanam</i>	3
Dryness with <i>Parushya</i> , bright white streak on scratching on to the lid skin remaining for a considerable time	2	continuous feeling of <i>Jantunam Iva Sarpanam</i>	4
Dryness, <i>Parushya</i> , slight thickening of the lid skin with visible crisscross marking with no cracking of the lid skin.	3	Nimeshonmeshana Krichchata (Difficulty in lid movement)	
Dryness, <i>Parushya</i> , slight thickening of the lid skin with visible crisscross marking with cracking of the lid skin.	4	Absent - no <i>Nimeshonmeshana Krichchata</i>	0
Vishushka Bhava (Dryness - feeling)		Occasional <i>Nimeshonmeshana Krichchata</i>	1
Absent – no <i>Vishushka Bhava</i>	0	Intermittent and mild <i>Nimeshonmeshana Krichchata</i>	2
Occasionally present and very mild <i>Vishushka Bhava</i>	1	Frequent and moderate <i>Nimeshonmeshana Krichchata</i>	3
Intermittently present and mild <i>Vishushka Bhava</i>	2	<i>Nimeshonmeshana Krichchata</i> almost all the time	4
Frequently present moderate <i>Vishushka Bhava</i>	3	Kshiadhamana Iva Bhati (Feeling of distended eyes)	
<i>Vishushka Bhava</i> present almost all the time and severe	4	Absent - no <i>Akshiadhamana Iva Bhati</i>	0
Shiroabhitapa (Headache)		Occasional <i>Akshiadhamana Iva Bhati</i>	1
Absent- no <i>Shiroabhitapa</i>	0	Intermittent <i>Akshiadhamana Iva Bhati</i>	2
Noticeable <i>Shiroabhitapa</i>	1	Frequently <i>Akshiadhamana Iva Bhati</i>	3
Moderate <i>Shiroabhitapa</i>	2	<i>Akshiadhamana Iva Bhati</i> almost all the time.	4
Severe <i>Shiroabhitapa</i>	3	Shushka Dushika (Dry discharge)	
Shishirasruta (Cold lacrimation)		Absent – no <i>Shushka Dushika</i>	0
Absent-no <i>Shishirasruta</i>	0	Occasional <i>Shushka Dushika</i> need not to wipe,	1
Mild and occasionally need to wipe	1	Intermittent need to wipe <i>Shushka Dushika</i> ,	2
Mild but intermittently need to wipe	2	Frequent need to wipe <i>Shushka Dushika</i> ,	3
Moderate and need to wipe frequently	3	All the time need to wipe <i>Shushka Dushika</i>	4
Severe and need to wipe almost all the time.	4	Alpa Dushika (Scanty discharge)	
		Absent – no <i>Alpa Dushika</i>	0
		Occasional <i>Alpa Dushika</i> need not to wipe,	1
		Intermittent need to wipe <i>Alpa Dushika</i> ,	2
		Frequent need to wipe <i>Alpa Dushika</i> ,	3
		All the time need to wipe <i>Alpa Dushika</i>	4

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Chala Ruja (Referred pain)	
Absent - no <i>Chala Ruja</i>	0
<i>Bhru Ruja</i> or 1 site involved	1
<i>Bhru, Shankha, Ruja</i> or 2 sites involved	2
<i>Bhru, Shankha, Lalata, Ruja</i> or 3 sites involved	3
<i>Bhru, Shankha, Lalata, Shiro Ruja</i> or 4 sites involved	4
Kandu (Itching)	
Absent - no <i>Kandu</i>	0
Occasional tickle sensation not requiring to rub eye	1
Intermittent tickle sensation not requiring to rub eye	2
Continuous itch which requires rubbing of eyes	3
An incapacitating itch which would require significant eye rubbing	4
Ragata (Redness)	
Absent - no <i>Ragata</i>	0
Mild - occasional <i>Ragata</i> with clear pattern of blood vessels	1
Moderate - intermittent <i>Ragata</i> with clear pattern of blood vessels	2
Moderate - <i>Ragata</i> with the disturbed patterned of blood vessels	3
Severe - Velvety conjunctiva with loss of pattern of blood vessels	4
Daha(Burning sensation)	
Absent - no <i>Daha</i>	0
Occasional <i>Daha</i> not requiring to rub eye	1
Intermittent <i>Daha</i> not requiring to rub eye	2
Continuous <i>Daha</i> which requires rubbing of eyes	3
An incapacitating <i>Daha</i> which would require significant eye rubbing	4
Objective assessment	
Hyperemia in Palpebral Conjunctiva	
No Manifestation	0
Dilatation of vessels in lower palpebral conjunctiva	1
Dilatation of vessels in lower part of upper palpebral conjunctiva	2
Dilatation of vessels in lower and upper palpebral conjunctiva	3
Swelling in Palpebral Conjunctiva	
No Manifestation	0
Localized oedema	1
Diffused mild oedema	2
Diffused marked oedema	3
Follicle	
No Manifestation	0
1-9 follicles	1
10-19 follicles	2
20 or more follicles	3
Papillae	
No Manifestation	0
Diameter 0.1- 0.2mm	1
Diameter 0.3- 0.5mm	2
Diameter \geq 0.6mm	3

Hyperemia in Bulbar Conjunctiva	
No Manifestation	0
Dilatation of vessels in any two quadrants of bulbar conjunctiva	1
Dilatation of vessels in any three quadrants of bulbar conjunctiva	2
Dilatation of vessels in all four quadrants of bulbar conjunctiva	3

Chemosis in Bulbar Conjunctiva	
No Manifestation	0
Micro chemosis	1
Macro chemosis	2
Bullous chemosis of entire conjunctiva	3

Observations and results

Demographic data have been presented for 104 patients, while clinical data was made on 101 patients who completed the trial, and similarly, the results were analyzed and are presented in Tables 4 to 12.

Demographic profile

Age wise distribution of patients showed that maximum 48.08 % patients came under the age group of 18-30 years , 32.70% between 31-40 years and 19.23% belonged to 41-50 years age group. Sex wise distribution showed that 59.61% were female and rest patients were male i.e. 40.38%. Incidence of *Vataja Abhishyanda* was found 37.50% in house wives followed by 24.03 % in serviceman. 21.15% in workers while 17.30% in students. Majority of the patients i.e. 52.88% belonged to lower middle class while 43.26% were from middle class and 03.84% were from upper middle class. Maximum number of the patients i.e. 95.19% had seasonal problem, 80.76% had sunlight, 70.19% had wind, 59.61% had problem in hot season, 44.23% had pollens, 25.96% had dust and 11.53% had cold things as aggravating factor. Maximum patients i.e. 67.30% had allergic rhinitis and 2.88% patients had eczema as associated complaint. Maximum i.e. 56.73% patients were of *Vata Pitta Prakriti*, followed by 24.04% patients of *Pitta-Kaphaja Prakriti*, while 19.23% were of *Vata-Kaphaja Prakriti*.

Clinical profile

The study showed that maximum 98.08% patients had chief complaint *Achchasruta*, 86.54% patients had *Shushka Dushika*, 84.61% patients had *Sangharsha, Jantunam Iva Sarpanam* and *Alpa Dushika*, 83.65% patients had *Toda*, 72.11% patients had *Akshyadhmantam Iva Bhati*, 70.19% patients had *Shiroabhitapa*, 69.23% patients had *Vishushka Bhava*, 56.73% patients had *Stambha*, 49.04% patients had *Alpa Shopha*, 46.15% patients had *Chala Ruja*, 35.58% patients had *Parushya*, 23.08% patients had *Shishirasruta* and 14.42% patients had *Nimeshonmeshana Krichchata* as chief complaint. Maximum 81.73% patients had *Kandu*, 38.46% patients had *Ragata* and 23.08% patients had *Daha* as associated symptoms.

Effect of therapy in Group A

In this group significant relief was found in *Toda* (97.17%), *Stambha* (97.47%), *Sangharsha* (98.39%), *Parushya* (96.08%), *Shiroabhitapa* (96.30%), *Vishushka Bhava* (97.09%), *Shishirasruta* (97.56%), *Achchasruta* (96.77%), *Alpa Shopha* (96.97%), *Jantunam Iva Sarpanam* (98.36%), *Nimeshonmeshana Krichchata* (93.33%), *Akshyadhmantam Iva Bhati*

(97.65%), *Shushka Dushika* (97.08%), *Alpa Dushika* (96.83%), *Chala Ruja* (96.00 %), *Kandu* (95.93 %), *Ragata* (93.48 %), *Daha* (96 %).

91.78 % relief was found in hyperemia, 95.55% in swelling, 55.55% in follicle, 70% in papillae in palpebral conjunctiva and 94.44 % in hyperemia in Bulbar Conjunctiva.

Table 4: Effect of Punarnavadi eye drop (Group A) on chief complaints of 51 patients.

Chief complaints	Mean		Diff	% of relief	Signed rank test					Remarks
	BT	AT			SD	SE	n	W	p	
<i>Toda</i> (Pricking pain)	2.65	0.07	2.58	97.17	0.67	0.10	40	820	<0.001	HS
<i>Stambha</i> (Stiffness of lids)	2.82	0.07	2.75	97.47	0.64	0.12	28	406	<0.001	HS
<i>Sangharsha</i> (Foreign body sensation)	2.69	0.04	2.65	98.39	0.56	0.08	46	1081	<0.001	HS
<i>Parushya</i> (Roughness)	2.55	0.10	2.45	96.08	0.51	0.11	20	210	<0.001	HS
<i>Shiroabhitapa</i> (Headache)	2.38	0.08	2.30	96.30	0.57	0.09	34	595	<0.001	HS
<i>Vishushka Bhava</i> (Dryness - feeling)	2.94	0.08	2.86	97.09	0.64	0.10	35	630	<0.001	HS
<i>Shishirasruta</i> (Cold lacrimation)	2.73	0.06	2.67	97.56	0.72	0.18	15	120	<0.001	HS
<i>Achchasruta</i> (clean/ watery discharge)	3.03	0.09	2.94	96.77	0.70	0.09	51	1326	<0.001	HS
<i>Alpa Shopha</i> (Mild chemosis)	2.44	0.07	2.37	96.97	0.56	0.10	27	378	<0.001	HS
<i>Jantunam Iva Sarpanam</i> (Crawling sensation)	2.65	0.04	2.61	98.36	0.53	0.07	46	1081	<0.001	HS
<i>Nimeshonmeshana Krichchata</i> (Difficulty in lid movement)	2.57	0.14	2.43	93.33	0.53	0.20	7	28	<0.05	S
<i>Akshyadhmantam Iva Bhati</i> (Feeling of distended eyes)	2.29	0.05	2.24	97.65	0.64	0.10	37	703	<0.001	HS
<i>Shushka Dushika</i> (Dry discharge)	2.97	0.08	2.89	97.08	0.64	0.09	46	1081	<0.001	HS
<i>Alpa Dushika</i> (Scanty discharge)	2.86	0.09	2.77	96.83	0.60	0.09	44	990	<0.001	HS
<i>Chala Ruja</i> (Referred pain)	2.50	0.10	2.40	96.00	0.59	0.13	20	210	<0.001	HS

BT- Before treatment, AT- After treatment, SD- Standard deviation, SE- Standard error, n- number of patients, W- Wilcoxon signed rank test, p- Probability, HS- highly significant, S- significant

Table 5: Effect of Punarnavadi eye drop (Group A) on associated symptoms of 51 patients

Associated symptoms	Mean		Diff	% of relief	Signed rank test					Remarks
	BT	AT			SD	SE	n	W	p	
<i>Kandu</i> (Itching)	2.73	0.11	2.62	95.93	0.57	0.08	45	1035	<0.001	HS
<i>Ragata</i> (Redness)	2.55	0.16	2.39	93.48	0.50	0.11	18	171	<0.001	HS
<i>Daha</i> (Burning sensation)	2.77	0.11	2.66	96.00	0.50	0.16	9	45	<0.05	S

Table 6: Effect of Punarnavadi eye drop (Group A) on objective criteria of 51 patients

Objective criteria	Mean		Diff	% of relief	Paired t test					Remarks	
	BT	AT			SD	SE	n	T	p		
Palpebral Conjunctiva	Hyperemia	2.92	0.24	2.68	91.78	0.51	0.07	50	36.96	<0.001	HS
	Swelling	2.25	0.10	2.15	95.55	0.58	0.13	20	16.37	<0.001	HS
	Follicle	1.00	0.44	0.56	55.55	0.52	0.17	9	3.16	<0.05	S
	Papillae	1.08	0.32	0.76	70.00	0.48	0.07	46	10.75	<0.001	HS
Bulbar Conjunctiva	Hyperemia	2.84	0.15	2.69	94.44	0.57	0.09	38	28.80	<0.001	HS
	Chemosis	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	-	-

Effect of therapy in Group B

In this group significant relief was found in *Toda* (98.15 %), *Stambha* (98.63 %), *Sangharsha* (97.92 %), *Parushya* (97.37 %), *Shiroabhitapa* (97.75 %), *Vishushka Bhava* (98.95 %), *Shishirasruta* (95.83 %), *Achchasruta* (96.30 %), *Alpa Shopha* (98.11 %), *Jantunam Iva Sarpanam* (97.92 %), *Nimeshonmeshana Krichchata* (94.11 %), *Akshyadhmantam Iva Bhati* (98.83 %), *Shushka Dushika* (98.30 %), *Alpa Dushika* (99.14 %), *Chala Ruja* (98.41 %), *Kandu* (97.90 %), *Ragata* (96%), *Daha* (91.66 %).

95.65 % relief was found in hyperemia, 100% in swelling, 75% in follicle, 83.67% in papillae in palpebral conjunctiva and 94.28 % in hyperemia in Bulbar Conjunctiva.

Table 7: Effect of Gutika Anjana (Group B) on chief complaints of 50 patient

Chief complaints	Mean		Diff	% of relief	Signed rank test					Remarks
	BT	AT			SD	SE	n	W	P	
<i>Toda</i> (Pricking pain)	2.40	0.04	2.36	98.15	0.64	0.09	45	1035	<0.001	HS
<i>Stambha</i> (Stiffness of lids)	2.43	0.03	2.40	98.63	0.49	0.09	30	465	<0.001	HS
<i>Sangharsha</i> (Foreign body sensation)	2.46	0.05	2.41	97.92	0.54	0.08	39	780	<0.001	HS
<i>Parushya</i> (Roughness)	2.37	0.06	2.31	97.37	0.60	0.15	16	136	<0.001	HS
<i>Shiroabhitapa</i> (Headache)	2.40	0.05	2.35	97.75	0.58	0.09	37	703	<0.001	HS
<i>Vishushka Bhava</i> (Dryness - feeling)	2.74	0.03	2.71	98.95	0.71	0.12	35	630	<0.001	HS
<i>Shishirasruta</i> (Cold lacrimation)	2.66	0.11	2.55	95.83	1.01	0.33	9	45	<0.05	S
<i>Achchasruta</i> (clean/ watery discharge)	2.81	0.10	2.70	96.30	0.71	0.10	48	1176	<0.001	HS
<i>Alpa Shopha</i> (Mild chemosis)	2.52	0.04	2.47	98.11	0.51	0.11	21	231	<0.001	HS
<i>Jantunam Iva Sarpanam</i> (Crawling sensation)	2.46	0.05	2.41	97.92	0.54	0.08	39	780	<0.001	HS
<i>Nimeshonmeshana Krichchata</i> (Difficulty in lid movement)	2.42	0.14	2.28	94.11	0.48	0.18	7	28	<0.05	S
<i>Akshyadhmantam Iva Bhati</i> (Feeling of distended eyes)	2.38	0.02	2.36	98.83	0.63	0.10	36	666	<0.001	HS
<i>Shushka Dushika</i> (Dry discharge)	2.78	0.04	2.74	98.30	0.66	0.10	42	903	<0.001	HS
<i>Alpa Dushika</i> (Scanty discharge)	2.72	0.02	2.70	99.14	0.67	0.10	43	946	<0.001	HS
<i>Chala Ruja</i> (Referred pain)	2.42	0.03	2.39	98.41	0.49	0.09	26	351	<0.001	HS

Table 8: Effect of Gutika Anjana (Group B) on associated symptoms of 50 patients

Associated symptoms	Mean		Diff	% of relief	Signed rank test					Remarks
	BT	AT			SD	SE	n	W	p	
<i>Kandu</i> (Itching)	2.43	0.05	2.38	97.90	0.49	0.07	39	780	<0.001	HS
<i>Ragata</i> (Redness)	2.50	0.10	2.40	96.00	0.59	0.13	20	210	<0.001	HS
<i>Daha</i> (Burning sensation)	2.76	0.23	2.53	91.66	0.51	0.14	13	91	<0.05	S

Table 9: Effect of Gutika Anjana (Group B) on objective criteria of 50 patients.

Objective criteria	Mean		Diff	% of relief	Paired t test					Remarks	
	BT	AT			SD	SE	n	T	P		
Palpebral Conjunctiva	Hyperemia	2.81	0.12	2.69	95.65	0.58	0.08	49	32.25	<0.001	HS
	Swelling	2.33	0.00	2.33	100	0.49	0.14	12	16.41	<0.001	HS
	Follicle	1.00	0.25	0.75	75.00	0.50	0.25	4	3.00	<0.05	S
	Papillae	1.00	0.16	0.84	83.67	0.37	0.05	49	15.68	<0.001	HS
Bulbar Conjunctiva	Hyperemia	2.76	0.15	2.61	94.28	0.54	0.09	38	27.01	<0.001	HS
	Chemosis	0.00	0.00	0.00	0.00	0.00	0.00	0	-	-	-

Comparison between Group A and Group B

Statistically insignificant difference was found in all the signs and symptoms between the two groups (p>0.05).

Table 10: Comparative effect of therapy between Punarnavadi eye drop (Group A) Gutika Anjana (Group B) on chief complaints

Chief complaints	Group	N	Mean diff.	Mann Whitney Test					Significance
				SD	SE	U	U'	P	
<i>Toda</i> (Pricking pain)	A	40	2.57	0.67	0.10	772	1028	>0.05	IS
	B	45	2.35	0.64	0.09				
<i>Stambha</i> (Stiffness of lids)	A	28	2.75	0.64	0.12	300	540	>0.05	IS
	B	30	2.40	0.49	0.09				
<i>Sangharsha</i> (Foreign body sensation)	A	46	2.65	0.56	0.08	695	1099	>0.05	IS
	B	39	2.41	0.54	0.08				
<i>Parushya</i> (Roughness)	A	20	2.45	0.51	0.11	142	177	>0.05	IS
	B	16	2.31	0.60	0.15				
<i>Shiroabhitapa</i> (Headache)	A	34	2.29	0.57	0.09	596	662	>0.05	IS
	B	37	2.35	0.58	0.09				
<i>Vishushka Bhava</i> (Dryness - feeling)	A	35	2.85	0.64	0.10	550	675	>0.05	IS
	B	35	2.71	0.71	0.12				
<i>Shishirasruta</i> (Cold lacrimation)	A	15	2.66	0.72	0.18	62	73	>0.05	IS
	B	9	2.55	1.01	0.33				
<i>Achchasruta</i> (clean/ watery discharge)	A	51	2.94	0.70	0.09	1020	1428	>0.05	IS
	B	48	2.70	0.71	0.10				

<i>Alpa Shopha (Mild chemosis)</i>	A	27	2.37	0.56	0.10	258	308	>0.05	IS
	B	21	2.47	0.51	0.11				
<i>Jantunam Iva Sarpanam (Crawling sensation)</i>	A	46	2.60	0.53	0.07	721	1072	>0.05	IS
	B	39	2.41	0.54	0.08				
<i>Nimeshonmeshana Krichchata (Difficulty in lid movement)</i>	A	7	2.42	0.53	0.20	21	28	>0.05	IS
	B	7	2.28	0.48	0.18				
<i>Akshyadhmantam Iva Bhati (Feeling of distended eyes)</i>	A	37	2.24	0.64	0.10	599	732	>0.05	IS
	B	36	2.36	0.63	0.10				
<i>Shushka Dushika (Dry discharge)</i>	A	46	2.89	0.64	0.09	844	1088	>0.05	IS
	B	42	2.73	0.66	0.10				
<i>Alpa Dushika (Scanty discharge)</i>	A	44	2.77	0.60	0.09	876	1016	>0.05	IS
	B	43	2.69	0.67	0.10				
<i>Chala Ruja (Referred pain)</i>	A	20	2.40	0.59	0.13	251	264	>0.05	IS
	B	26	2.38	0.49	0.09				

U- Mann Whitney test

Table 11: Comparative effect of therapy between *Punarnavadi* eye drop (Group A) *Gutika Anjana* (Group B) on associated symptoms

Associated symptoms	Group	N	Mean diff.	Mann Whitney Test					
				SD	SE	U	U'	P	Remarks
<i>Kandu (Itching)</i>	A	45	2.62	0.57	0.08	673	1081	>0.05	IS
	B	39	2.38	0.49	0.07				
<i>Ragata (Redness)</i>	A	18	2.38	0.50	0.11	174	185	>0.05	IS
	B	20	2.40	0.59	0.13				
<i>Daha (Burning sensation)</i>	A	9	2.66	0.50	0.16	51	66	>0.05	IS
	B	13	2.53	0.51	0.14				

Table 12: Comparative effect of therapy between *Punarnavadi* eye drop (Group A) *Gutika Anjana* (Group B) on objective criteria

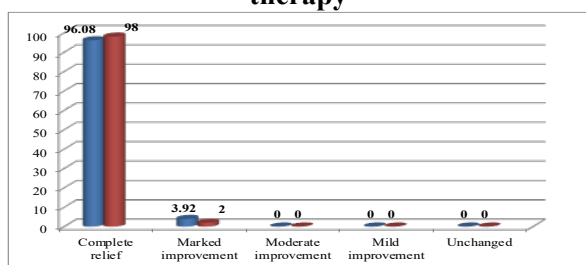
Objective criteria	Group	N	Mean diff.	Unpaired t-Test					
				SD	SE	T	P	Remarks	
Palpebral Conjunctiva	Hyperemia	A	50	2.68	0.51	0.07	0.126	>0.05	IS
		B	49	2.69	0.58	0.08			
	Swelling	A	20	2.15	0.58	0.13	0.906	>0.05	IS
		B	12	2.33	0.49	0.14			
	Follicle	A	9	0.55	0.52	0.17	0.622	>0.05	IS
		B	4	0.75	0.50	0.25			
Papillae	A	46	0.76	0.48	0.07	0.863	>0.05	IS	
	B	49	0.83	0.37	0.05				
Bulbar Conjunctiva	Hyperemia	A	38	2.68	0.57	0.09	0.58	>0.05	IS
		B	38	2.60	0.59	0.09			

Overall effect of therapy

In **Group A**, out of 51 patients, 96.08% got complete relief after the completion of treatment, 03.92% got marked improvement. In **Group B**, out of 50 patients, 98% got complete relief after the completion of treatment, 2% got marked improvement.

From overall effect of therapy it can be concluded that Group B has cured more percentage of patients than Group A. It helps in breaking the pathogenesis of the disease and stop the progression of disease.

Graph 1: Showing percentage of overall effect of therapy



Discussion

Allergic conjunctivitis is one of the most common problems seen by ophthalmologists worldwide. Allergic conjunctivitis is estimated to affect 20 percent of the population on an annual basis and approximately one-half of these people have a personal or family history of atopy(4). In Jamnagar, due to the natural dry and dusty weather, heavy industrialization, individuals of this area are prone to allergy of eye. Patient suffering from allergic conjunctivitis is attending the OPD of *Shalaky Tantra* department of I.P.G.T & R.A for the treatment of allergic conjunctivitis. Therefore, a timely diagnosis and management is required to seize the progression of this disease.

Modern management include topical antihistamines, mast cell stabilizers, nonsteroidal anti-inflammatory drugs (NSAIDs), and corticosteroids. But they have their own limitations. By considering all these limitations of modern science, the discussion pointed towards *Ayurveda*. Is there any formulation available in

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traditional system of *Ayurveda* which can control Inflammation, promote immune-modulation of ocular surface, free from preservatives and cost effective? This thought lead to this clinical study to find out an *Ayurvedic* formulation which can manage the **Allergic conjunctivitis (Vataja Abhishyanda)** efficiently by curing the underlying pathology and improving the ocular surface defence mechanism.

According to *Ayurveda* the instilled medicine (*Aschyotana*) will penetrate into *Akshikosha Srotas*, *Shira Srotas*, *Ghrana Srotas* and *Mukha Srotas* of the *Urdhvanga Bhaga* and remove the *Mala* present there. After absorption of Eye Drop may undergo systemic distribution primarily by nasal mucosa absorption and possible by local ocular distribution by transcorneal/transconjunctival absorption and metabolism of eye drops by various enzymes. Hence after instillation of eye drops, these fluids undergo absorption, distribution and metabolism. So effect of eye drops is local as well as systemic.

Anjana have micro particles which may be deposited in the cul-de-sac and thereby increase the bioavailability to enhance ocular absorption. The ocular absorption of *Anjana* may initiate through the conjunctiva and cornea. Mainly lipophilic active ingredients may absorb through the cornea by transcellular pathway and hydrophilics from the conjunctiva by paracellular pathway. Once it crosses the conjunctiva (mainly hydrophilics); the sclera is more permeable and it allows drugs to penetrate the other interior structures of the eye i.e. ciliary body, iris, aqueous humour, lens, vitreous etc.

Both the drugs i.e. *Punarnavadi* eye drops (*Punarnava*(5),(6), *Saindhava*(7), *Sita*(8) and *Sphatika*(9) and *Gutika Anjana* (*Shunthi*(10), *Pippali*(11), *Gairika*(12) and *Saindhava*) have *Tridoshashamana* effect. They are *Madhura*, *Katu*, *Kashaya* in *Rasa*, *Snigdha Guna*, *Ushna Virya* and *Madhura Vipaka*. All these factors help to break the *Samprapti* of *Vataja Abhishyanda* and relieve the symptoms like *Toda*, *Stambha*, *Sangharsa*, *Kandu*, *Daha*, *Ragata*, etc. They have *Rasayana*, *Chakshushya*, *Shothhara*, *Raktastambhaka*, *Deepana*, *Pachana*, *Vatanulomana* property. It helps to relieve the inflammatory changes that decrease the signs like hyperemia, swelling, papillae, follicles present in conjunctiva.

Conclusion

The clinical features of *Vataja Abhishyanda* explained in all classical texts resembles with most of sign and symptoms of allergic conjunctivitis. *Punarnavadi* eye drop and *Gutika Anjana* both have showed excellent effect on signs and symptoms of allergic conjunctivitis on the basis of percentage relief.

But *Gutika Anjana* showed better result in maximum sign and symptoms on the basis of percentage. The reason may be *Anjana* has maximum absorption due to more contact of time with the tissue which is responsible for better bioavailability. No adverse reactions were reported in any of the patients during the entire study period and follow up.

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Conflicts of interest

There are no conflicts of interest.

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