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Research Article

EFFICACY OF *ASCHYOTANA* IN THE MANAGEMENT OF *VATAJA ABHISHYANDA* (ALLERGIC CONJUNCTIVITIS): AN OBSERVATIONAL STUDY

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KEYWORDS: *Abhishyanda*, Conjunctivitis, Allergic, Bilvadi, Eye drops.

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ABSTRACT

Background: Inflammation of the conjunctiva due to allergy is known as allergic conjunctiva. It is also seen in the people suffering from allergic rhinitis and is affected by all age groups at least once in their lifetime. But older population and children are more prone for allergic conjunctivitis.

Objectives: To evaluate the effect of *Aschyotana karma* or the therapy with *Bilvadi* eye drops in the management of *Vataja abhishyanda* (allergic conjunctivitis). **Design:** This was an observational study with random sampling. Forty subjects who fulfilled the eligibility criteria were included for the study. Patients with complaints of Allergic Conjunctivitis were selected from OPD of Department of *Shalakya Tantra (Netra-Roga),* R.G.G.P.G. Ayu. Hospital Paprola, Himachal Pradesh. These patients were administered *Bilvadi aschyotana* 2 eye drops 4to 5 times for 15 days and were assessed for itching, redness, burning sensation and photophobia before the treatment, on the 3rd day, once in a week and after the treatment.

Results: *Aschyotana* with *Bilvadi* eye drops in *Vataja abhishyanda* provided significant relief in itching 70.09%, redness 41.7%, burning sensation 47.6% and photophobia 53.3%.

INTRODUCTION

Allergic conjunctivitis or conjunctival symptoms are present in 30-71% of patients with allergic rhinitis. Allergic conjunctivitis alone has been estimated in 6-30% of the general population and up to 30% in children alone or in association with allergic rhinitis. Seasonal allergic conjunctivitis is the most frequent form; however, studies from tertiary, ophthalmology referral centres report that the chronic forms, such as vernal and atopic kerato conjunctivitis, are the most frequently seen by ophthalmologists.[1] Older population studies estimate a prevalence of 15-20% of allergic conjunctivitis, but more recent studies implicate rates as high as 40%.[2]

Allergic conjunctivitis (AC) is an inflammation of the conjunctiva due to allergy.[3] Allergic conjunctivitis (AC) is an inflammation of the conjunctiva secondary to an immune response to external antigens, usually called allergens. This inflammation could be IgE mediated and non-IgE mediated and atopy could play a significant role in clinical evolution.[4] AC is not a single disease; in fact it is a syndrome affecting the entire ocular surface, including conjunctiva, lids, cornea, and tear film.[5] Appropriate management of allergic conjunctivitis needs a correct diagnosis. Presence of itching is a hallmark of ocular allergy.[6] Though some authors have described management protocols, there are no universally accepted protocols of management for allergic eye diseases.[7,8]

Various drugs are available and the treatment options vary based on the severity of the disease. It is important to avoid any known allergen or reduce exposure to it by using wrap around

glasses, by changing the environment, replacing allergen harboring items such as pillows and carpets. However, such recommendations may be challenging for patients. In addition, cool compresses can be done to prevent rubbing of the eye. Ocular lubricating eye drops can be used to dilute the inflammatory agents in tears and wash away the allergen to reduce itching and to prevent further worsening of symptoms.[9]

The mainstay of treatment is the use of lubricants, anti-histamines and mast cell stabilisers. Steroids are to be given under proper medical care when the cornea is involved or the disease is very severe with itching.[6]

Topical antihistamines competitively and reversibly block histamine receptors and relieve itching and redness but only for a short time.[10] Combination treatments using decongestants with antihistamines have been shown to be more effective, and are administered to the eye as drops up to 4 times daily.[11]

Even alternative and complementary medicines speak about Allergic Conjunctivitis and it is called as *Vataja Abhishyanda* in Ayurvedic medicine. Its aetiology, symptoms, signs and the treatment has been explained in detail by the Acharyas of Ancient medicine. *Kriyakalpas* are the unique Ayurvedic therapies specially designed for the ophthalmic disorders and shown significant results through research studies. One such therapy is the *Aschyotana* which was administered in this study in patients who were suffering from *Vataja abhishyanda* to evaluate the effect of *Bilvadi* drops in the management of *Vataja abhishyanda*.

MATERIAL AND METHODS

Subjects

This was an observational study with random sampling. Forty subjects who fulfilled the eligibility criteria were included for the study. Patients were selected from OPD of Department of *Shalakya Tantra (Netra-Roga),* R.G.G.P.G. Ayu. Hospital Paprola, Himachal Pradesh. Patients of Allergic conjunctivitis who attended O.P.D. during this study period were selected for the present study irrespective of age, caste, race and religion.

Inclusion Criteria

Patients who were diagnosed as *Vataja Abhishyanda* (Allergic Conjunctivitis) and willing to participate in the trial were included in the study.

Exclusion Criteria

Patients suffering from dry eye, Blepharitis, Trichiasis, Dacrocystitis, Chronic rhinitis and Trachoma, complicated conjunctivitis, people with other specific conjunctival diseases, and patients suffering from major systemic diseases like Diabetes, Hypertension where this type of treatment is not feasible and who are not willing for trial were excluded from the study.

Design

This was an observational study with random sampling. Forty subjects who fulfilled the eligibility criteria were included for the study. These patients were administered *Bilvadi aschyotana* 2 eye drops 4 to 5 times a day for 15 days and were assessed before the treatment, on the 3rd day, once in a week and after the treatment. Only the subjective parameters were assessed and follow up was done after two months.

Ethical clearance and consent

The study was approved by the institutional ethical committee and signed informed consent was obtained from all patients.

Outcome Measures

Itching, redness, burning sensation and photophobia were assessed before the treatment, on the 3rd day, once in a week and after the treatment.

Table 1: Gradation Index

S.No.	Outcome measures	Grading
1.	Itching	
	No itching	0
	Occasional tickle sensation not requiring to rub eye	1
	Intermittent tickle sensation which require to rub eye	2
	Continuous itch which require rubbing	3
2.	Redness/Congestion	
	No redness	0
	Palpebral conjunctival congestion	1
	Bulbar conjunctival congestion	2
	Both palpebral & bulbar conjunctival congestion	3
3.	Burning sensation	

	No burning sensation	0
	Occasional Burning sensation	1
	Intermittent burning sensation	2
	Continuous burning sensation	3
4.	Photophobia	
	No photophobia	0
	Occasional	1
	Intermittent	2
	Continuous	3

Intervention

Intervention included *Poorva karma, Pradhana* and the *Paschat karma* that is as follows: patient was made to lie down in supine position and relaxed in a place devoid of unpleasant breeze or the *Nivata Sthana*. The *Vaidya* was ready with the *Ashchyotana Drava* by filtering it through thick cotton pad or a clean cloth. The eye of the patient was opened with the left hand and *administered* the medicine drop by drop either with a seashell or a wick held in right hand from two fingers height just above *Kaninika Sandhi* or the inner canthus area. The medicine was retained in the eyes for 100 *Matra Kala*[12] or 155.28 seconds or 2.58 minutes as mentioned in Ayurveda pharmacopeia of India.[13] The eyes then cleaned with soft cloth and observed for signs and symptoms of properly conducted *Ashchyotana Karma* such as *Netra vaimalya* (clearness of the eye), *Vedana upashamana* (relief of the pain), *Vyadhi nivruti* (cure of the disease) and *Netra laghava* (feeling of lightness in the eye).[14] As a *Paschat karma*, in case of *Kapha* and *Vata* predominant condition *Mridu Swedana* (mild fomentation) was done with a piece of cloth rinsed in warm water.

RESULTS

In the present study, 40 patients falling under inclusion criteria were registered. (Table No.2) Maximum number of patients were of age group 10-40 years (45%), were females (55%), married (75%), Hindu (100%), residents of rural area (100%), graduates (40%) and were taking vegetarian diet (67.5%). Majority of patients registered were that of *Vata-Pittaja Prakriti* (52.5%). Maximum number of patients had seasonal onset of disease (72.5%). Family history of any allergic disorder was reported in 37.5% patients.

Table 2: Demographic Data

Demographic parameters	Assessment	Percentage
Age	10-40yrs	45%
	41-50yrs	32%
	51-60yrs	12.5%
	61-70yrs	10%
Sex	Male	45%
	Female	55%
Religion	Hindus	100%
	Muslims	0
	Christians	0
Occupation	House wives	40%
	In service	35%
	Students	20%
	Retired	5%
Habitat	Urban	0
	Rural	100%
Education	Graduates	40%
	Post graduates	15%

	Matriculate	15%
	Higher secondary education	12.5%
	primary education	7.5%
	Uneducated	10%
Diet	Mixed diet	32.5%
	Vegetarian	67.5%
Addiction	No Addiction	87.5%
	Addiction	12.5%
Family history	History of Allergy	37.5%
	No History of Allergy	62.5%
	Vata-pittaja Prakriti	52.5 %
	Kapha-Vataja Prakriti	25%
	Pitta-kaphaja	22.5 %.
	Had onset of disease in season of summer	72.5%
	Had perennial nature of the disease.	27.5%

Effect of the *Aschyotana* therapy

The *Aschyotana* therapy showed statistically significant results in relieving itching by 70.09%, redness by 41.7%, burning sensation by 47.6% and photophobia by 53.3%.

1. **Itching:** The initial mean score of itching was 2.675 before treatment and it reduced to 0.8 after treatment. The percentage relief was 70.09% which is highly significant at the level of p <0.001 (t=18.304)
2. **Redness:** The initial mean score of redness was 2.55 before treatment and it reduced to 1.5 after treatment. The percentage relief was 41.7 % which is highly significant at the level of p <0.001 (t=10.400).
3. **Burning sensation:** The initial mean score of photophobia was 2.1 before treatment and it reduced to 1.1 after treatment. The percentage relief was 47.6% which is highly significant at the level of p<0.001 (t= 10.55).
4. **Photophobia:** The initial mean score of photophobia was before treatment 1.875 and it reduced to 0.875 after treatment. The percentage relief was 53.3% which is highly significant at the level of p <0.001 (t=8.832).

Table 3: Results

Parameters	**Mean Score**		**D**	**% age Relief**	**SD ±**	**SE±**	**T**	**P**
	BT	**AT**						
Itching	2.675	0.8	1.875	70.09	0.648	0.102	18.304	<0.001
Redness	2.55	1.5	1.050	41.77	0.639	0.101	10.400	<0.001
Burning sensation	2.1	1.1	1.000	47.62	0.599	0.0947	10.556	<0.001
Photophobia	1.875	0.875	1.000	53.33	0.716	0.113	8.832	<0.001

Table 4: Overall Effect of Therapy

Result	**No. Of Patients**	**Percentage**
Cured	0	0
Markedly Improved	0	0
Moderately Improved	23	57.5
Mildly Improved	17	42.5
Unchanged	0	0

DISCUSSION

In the present study 40 patients were registered. The diagnosis was done on the basis of signs and symptoms described in Ayurvedic and modern texts. The selected patients were given *Bilvadi Aschyotana* eye drops 2 drops 4 to 5 times a day for 15 days. During the trial, patients were assessed every week of treatment. For the assessment, both Ayurvedic and Modern parameters were followed. The results obtained were statistically analysed and mean percentage of relief, S.D., S.E. and t value by using the paired t test was calculated.

In this study, it was observed that the maximum number of the patients, i.e., 45% were in the age group of 10-40 years which was in accordance to the finding of the modern science that the disease most commonly occurs in this age and these patients were exposed to dusty and polluted atmosphere. With respect to sex, majority were females 55% due to their household activities like cleaning, dusting etc and seen more in Hindus with 100%. 40% were house-wives, 100% patients were residents of rural area. 40% of patients were graduates, 32.5% with mixed diet, addiction to smoking was found in only 12.5% of patients, 37.5% of them had family history of allergy that 52.5% of them were of *Vata-pittaja Prakriti*, 25% *Kapha-Vataja Prakriti* followed by *Pitta-kaphaja* 22.5%. In this clinical study majority of patients 72.5% had onset of disease in season of summer whereas only 27.5% of patients had perennial nature of the disease.

Acharyas have explained *Abhishyanda* as *Sarvagata Vyadhi*. All *Acharyas* are in same opinion regarding the disease *Abhishyanda*. *Acharya* quoted that *Abhishyanda* is the root cause of almost all the eye diseases. Conjunctivitis can be co-related with *Abhishyanda* on the basis of signs and symptoms. *Acharyas* also quoted that if *Vataja Abhishyanda* is not treated in time it leads to severe complication like *Vatadhimantha* ultimately resulting in *Hatadhimantha* that is *Drishtinasha* stage. Acharya Sushruta has recommended '*Kriyakalpa*' for the management of *Abhishyanda*, along with other forms of treatment. The term *Kriyakalpa* refers to the treatment, which can be applied for almost all types of eye diseases; and it comprises of *Tarpana, Putapaka, Seka, Ashchyotana,* and *Anjana.*

All *Acharyas* have given due importance to *Kriyakalpas*, but Acharya Vagbhatta quoted it as an *Aadya Upakrama*, the foremost procedure in treatment of all the eye diseases. It is said to be safe as well as most economical procedure. It eliminates the *Doshas* from all parts of eyes effectively. Special *Ashchyotana* formulations for *Abhishyanda* are available in Ayurvedic science. In *Ashchyotana therapy,* medicine is instilled drop by drop in *Kaneenaka Sandhi* which is highly vascularised area. Hence maximum absorption of the *Ashchyotana Drava* occurs in this area as compared to other areas of the eye. Among the various formulations prescribed for the treatment of *Vataja Abhishyanda* by different *Acharyas*, *Bilvadi Aschyotana* which is indicated in the treatment of *Vataja Abhishyanda* by *Vagabhatta* was selected for the present study.

Kriyakalpas or topical ocular therapeutics is the uniqueness of Ayurvedic ophthalmology which include *Parisheka /Seka*, *Aschyotana*, and *Tarpana*.[15] *Aschyotana* is considered as the first line of treatment for all *Netra rogas*. The drug is topically delivered into cul-de-sac to achieve greater availability and local quicker action.[16] According to Ayurveda the instilled medicine will penetrate into the *Akshikosha Srotas, Shira Srotas, Ghrana Srotas*, and *Mukha Srotas* of the *Urdhvanga Bhaga* and remove the Mala present there.[17]

Itching/Irritation of the eye

In this study, the initial mean score of itching/irritation of the eye were 2.675 before treatment and it reduced to 0.8 after treatment. The percentage relief was 70.09 which is highly significant at the level of p <0.001, (t=18.304).

Redness

In the present study, relief in redness was 41.7% with initial mean score before commencement of trial 2.55 which comes down to 1.5 after completion of trial which is statistically highly significant with p<0.001 and (t=10.400).

Burning sensation

In the present study, the initial mean score of burning sensation before treatment was 2.1 and it reduced to 1.1 after treatment. The percentage relief was 47.6 which is highly significant at the level of p<0.001 (t= 10.55).

Photophobia

In the present study, the initial mean score of photophobia before treatment was 1.875 and it reduced to 0.875 after treatment. The percentage relief was 48.73% which is highly significant at the level of p <0.001 (t=8.832).

Overall effect

23 patients were moderately improved i.e. 57.5%, 17 patients had mild improvement i.e. 42.5% and none of patient was cured or markedly improved.

One of the most simple and therapeutic modes of therapy are lubricating eye drops intended to relieve the symptoms of dry eyes due to decreased blink rates. Another study indicates that higher viscosity eye drops may be more beneficial than balanced salt solutions. Although the higher viscosity drops did not vary blink rates, they normalized the inter blink interval and relieved ocular discomfort more efficiently than balanced salt solutions following computer use. Unfortunately, these more viscous eye drops also cause a decrease in overall visual acuity. Common artificial tears are carboxy methyl cellulose and hydroxyl propyl cellulose. They contain water, salts and polymers but lack the proteins found in natural tears. Possible of adverse effects of carboxymethyl cellulose and other similar lubricants include eye pain, irritation, continued redness, or vision changes. Use should be discontinued if any of them occur. Those of hydroxypropyl cellulose include hyperemia, photophobia, stickiness of eyelashes, discomfort, and irritation. Long term use of preservatives present in some lubricating drops tears may harm the eye.[18]

Whereas, *Bilvadi* eye drops that is used in the present study is of *Ushna veerya* and possess *Vata-shamaka* property where, *Vata* is the main *Dosha* involved in the disease *Vataja abhishyanda*. Moreover all the contents also have *Shothahara* property which helps in subsiding features like *Alpa-shopha* (mild chemosis) of *Vataja abhishyanda*. The *Vednasthapana* property of the ingredients helps in relieving *Toda* (pricking pain). *Laghu, Ruksha guna* of the drug helps in better penetration of the drug. *Kshaya rasa* of the contents promotes healing (*Ropana*) and reduces the discharges.

After absorption, *Bilvadi Ashchyotana* and *Bilvadi* eye drops may undergo systemic distribution primarily by nasal mucosa absorption and possibly by local ocular distribution by transcorneal/transconjunctival absorption, and metabolism by various enzymes. Hence, after instillation of *Bilvadi Ashchyotana* and *Bilvadi* eye drops, these fluids undergo absorption, distribution, and metabolism. Thus, the effect of *Bilvadi Ashchyotana* and *Bilvadi* eye drops are local as well as systemic.[17]

Tannins present in *Bilva* have astringent properties. Most of the biological properties of tannins are linked to their ability to form complexes with macromolecules particularly with proteins (digestive and other enzymes, fungal or viral proteins). Tannin containing drugs precipitates protein and has been used traditionally as styptics and used for the protection of inflamed surfaces. Externally they waterproof the external layers of the skin and the mucosa thus protecting the underlying layers. They also have a vasoconstrictor effect on small superficial vessels. By limiting fluid losses and by preventing external aggressions tannins enhance tissue regeneration in case of superficial wound or burns. Tocopherol related compounds promote anti- oxidative activity at local site.

Passage of Eye Drops: The passage of *Bilvadi* eye drops through the epithelium is determined by factors controlling the penetration of the drugs into other cells (Degree of dissociation of electrolytes). The absorption of *Bilvadi* Eye Drops in the eye can be mainly by 3 mechanisms, Ultra filtration, Diffusion and Active transport.

Ultra filtration: Water and water soluble substance (limited by size & charge) passes through the micro pores in the cell membrane in response to an osmotic gradient or hydrostatic pressure.

Diffusion: Lipid soluble substances are transported through the lipid portions of membrane proportional to the concentration gradient across the membrane.

Active transport: Water soluble substances of large size and charge are actively transported across the cell membrane. This mechanism is believed to be mediated by globular proteins in the membrane & requires the expenditure of energy.

Limitations of the study

As the dose of the drops varies from person to person, uniformity in the dose cannot be maintained.

Strengths of the Study

Topical administration is preferred over the systemic mode for treating ocular diseases and conditions. It is simple to administer, easy to carry, relatively inexpensive and does not obscure vision. So patients prefer eye drop formulations. Packing in aseptic condition is also possible by modern ocular set up of pharmacy. Patients can maintain standard dose as instructed by the ophthalmologist. So, dose variation is minimal.

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CONCLUSIONS

Aschyotana with *Bilvadi* eye drops showed significant results in relieving itching, redness, burning sensation and photophobia in patients

suffering from *Vataja abhishyanda* or the Allergic Conjunctivitis.

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