Research Article

A CLINICAL STUDY ON THE EFFECT OF RASANJANA (EXTRACT OF *BERBERIS ARISTATA*) EYE DROPS IN TREATMENT OF NETRA ABHISHYANDA (INFECTIVE CONJUNCTIVITIS)

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ABSTRACT

Abhishyanda or Netra-Abhishyanda is classified as the eye disease affecting all parts of the eye. The gravity of Abhishyanda is such that it is often said to be the cause of all eye disorders. Adhimantha a blinding eye disease has directly originates from Abhishyanda, if not treated properly or neglected. To avoid such complications Acharya Sushruta has stressed on the importance of immediate need of treatment in this disease. Acharya Sushruta has counted it under communicable diseases.

Keywords: Abhishyanda, Adhimantha, Infective Conjunctivitis, Rasanjana

INTRODUCTION

Eye is an important sense organ. It has been privileged as the main sense organ because its loss of function leads to serious disability of a man by keeping him in the darkness. Life without eyesight is miserable and valueless. Hence it is very important to protect vision at any cost. Vagbhatta, the great author of Ayurveda has rightly described the importance of eyes in the verse¹. Acharya Sushruta has counted it under communicable diseases². Apart from this, while describing the etiological factor of the disease trauma, unwholesome food and activities have also been added. Dust and smoke are indicative of allergic origin of conjunctivitis. According to Sushruta and other Sages Abhishyanda are of four types³ namely vataja, Pittaja, kaphaja and raktaja. The word Abhishyanda is derived from two words viz.-Abhi and Syandana. 'Abhi' means profuse or more and 'Syandana' means discharge or secretion combined meaning is profuse discharge from all parts of eye. In Ophthalmology it is called Conjunctivitis. Generally speaking, Raga and Lohitnetrata⁴ (Conjunctival congestion), Sangharsha (foreign body sensation), Nistoda⁵ (Pricking sensation), Daha (Burning sensation), Paka⁶ (severe inflammation), is often accompanied with Mucopurulent or purulent discharge, are the important signs and symptoms of conjunctivitis. In this disease conjunctiva become inflamed reddish, mostly found in summer season and affect poor patients. A wide variety of etiological agents such as bacteria, virus and fungi can cause infection in the conjunctiva. Depending on the onset it may be divided into two broad clinical categories i.e. Acute and Chronic. Even though the conjunctivitis may manifest in various form, in the present study we have included only the cause of mucopurulent conjunctivitis⁷. The management of this condition is based on various measures like Aschyotana (Eye drops), Putpaka (Lubrication), ointment⁸ etc., mostly carried out by different medicinal plants among these medicines we have selected Rasanjana (extract of *Berberis aristata*) in Honey base and Rose water base. In Ayurveda all

the routes of infection known today such as ingestion, inhalation, physical contact and vectors are included. Furthermore it has unequivocally stated that these disease spread from one person to another or by contact with the diseased person. It is also interesting that diseases mentioned above are certainly infectious in nature. The contagious diseases are thought to be caused by invisible creatures present in the environment and classified the diseases as Agantuja Roga (Exogenous). A lot of literature is available in the treatment of netraabhishyanda with herbal formulation in the form of Parisheka (irrigation), Aschyotana (eye drop) and Anjana (collyrium) dosage forms. Among these Rasanjana (Extract of *Berberis aristata*) is the most widely advocated. In view of the magnitude of the problem, the discomfort it causes to the patients and the cost of the treatment, there is need to develop a therapy which is free from side effects, cheaper and has a significant effect in alleviating the symptoms of the patients. This study is an attempt in this direction to evaluate the effects of an Ayurvedic medicine on Mucopurulent conjunctivitis.

MATERIAL AND METHODS

Aims

To evaluate the efficacy of Ayurvedic compound Rasanjana Honey eye drops and Rasanjana Rose water eye drops on the course of Infective Conjunctivitis. To compare overall mean changes between the effect of Rasanjana Honey eye drops with Rasanjana Rose water eye drops. The drug Rasanjana (Extract of *Berberis aristata*) eye drops in Honey and Rose water base have been selected on the basis of its efficacy described in the text of Ayurveda in Abhishyanda. In all 38 patients in two groups (Gr. I and Gr. II), 20 in group - I and 18 in group - II, were registered for present study, 33 completed the trial successfully. The patients for this study were selected from Netra Roga OPD of PG Department of Shalakya Tantra, Rajiv Gandhi Government Post Graduate Ayurvedic College and Hospital, Paprola, District- Kangra,

India. On overall (Group-I and Group-II) 9 patients were cured. Drug gives relieve in the various symptoms of Mucopurulent conjunctivitis like foreign body sensation, Redness, Burning sensation etc. The drug decreases the various signs of Mucopurulent conjunctivitis like Conjunctival congestion, Chemosis, Papillary hypertrophy etc.

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The whole study was divided into

- Conceptual study
- Clinical study

Conceptual Study

Detailed review of Ayurvedic and modern literature was carried out to know about disease entity and treatment.

Clinical Study

Patients attending the outpatient department of Shalakya (Netra Roga Vibhaga) at Rajiv Gandhi Ayurvedic Hospital attached with Rajiv Gandhi Govt. Post Graduate Ayurvedic College Paprola formally known as H.G.I.P.G.E. and R. in Ayurveda and Hospital Paprola Distt. Kangra (H.P.), India with characteristic features of Mucopurulent conjunctivitis were selected for the present study during the period of December 2003 to July 2004. The due permission of ethics committee was taken prior to the study. 38 patients of Mucopurulent conjunctivitis who attended O.P.D. during this period were selected for present study irrespective of age, caste, creed, race and religion. A detailed proforma was prepared to study the disease in accordance to the patients of Mucopurulent conjunctivitis (Abhishyanda with special reference to Infective conjunctivitis).

Inclusion Criteria

All patients presenting with signs and symptoms of Netra-Abhishyanda (Infective conjunctivitis) was be taken into this study irrespective of age, sex, caste, religion etc.

Exclusion Criteria

- Keratoconjunctivitis
- Cases complicated with Dacryocystitis
- Viral conjunctivitis
- Allergic conjunctivitis
- Trachoma
- Patient suffering from specific Conjunctival or systemic disease

Sampling Technique

The patients were selected irrespective of caste, creed, religion, income, sex, occupation, chronicity of the disease etc. Random sampling technique was adopted. Patients were divided into two groups viz group I (Gr-I) and Group 2 (Gr-II).

Group-I: 20 patients were kept in this group, they were given Rasanjana Honey (R.H.) eye drops 2 drops 6 times a day.

Group-II: 18 patients were kept in this group. They were given Rasanjana Rose water (R.R.) eye drops 2 drops times a day.

All the patients (cases) were examined initially in O.P.D. and were selected for study on the basis of clinical presentation and diagnostic criteria.

Nature (Method) of Study

Clinical Study was accomplished in three phases.

Diagnostic phase

Interventional phase

Assessment phase

Diagnostic phase

The patients were diagnosed (selected) on the basis of signs and symptoms (clinical presentation) of infective conjunctivitis (and those mentioned in Ayurvedic classics in reference to Abhishyanda) investigations and findings. All the patients selected for trial were explained the nature of the study and their consent was obtained.

Table 1: Criteria of Assessment Adopted For Present Study

Redness	Lohit Netrata
Burning Sensation	Usha-Dah
Lacrimation	Ashru Srava
Photophobia	Prakashasayata
Foreign Body sensation	Sangharsha
Mucopurulent Discharge	Updeha and Pichil Srava
Headache	Shiroabhitapa
Colored Halos	
Edema	Akshi Shopha
Burning Sensation	Daha
Conj. Congestion	Rag, Rohit netrata
(a) Palpebral	Antarvartama
(b) Bulbar	Akshigolak twak
Chemosis	
Conjunctival Hypertrophy (Papillary)	
Petechial haemorrhages	
PAL	

Investigational Criteria

For the purpose of assessing the general condition of the patient and to exclude other pathologies, the following investigations were performed in all the selected patients.

Routine Examination

Hb%, TLC, DLC, ESR, SGPT, SGOT

Urine Routine and Microscopic

After arriving the diagnosis, clinical proforma was filled up which incorporated all the signs and symptoms based on both Ayurvedic as well as modern descriptions (parameters). All the points in perspective of dosha, dushya, srotas and Agni on Ayurvedic line were also included in proforma. A detailed clinical history was taken initially and complete physical and ocular examination of each patient was carried out on the basis of proforma. Haemogram, TLC, DLC, ESR and Urine investigations all were carried out in every patient.

Interventional phase

The study was intervened by the treatment with

- Rasanjana Honey (RH) eye drops and
- Rasanjana Rose water (RR) eye drops.

Schedule

Group-I (Gr-I) Rasanjana Honey (RH) eye drops2 drops 6 times a day.

Group-II (Gr-II) Rasanjana Rose water eye drops 2 drops 6 times a day.

Duration of Trial: Total duration of treatment for both the groups of subjects was 7 days.

Assessment Phase (Criteria for Assessment)

The effects of treatment (results) were assessed in regards to the clinical signs and symptoms (on the basis of grading and scoring system) and overall improvement.

Clinical Assessment

The signs and symptoms were assessed by adopting suitable scoring method. The details are as follows:

Redness

No Redness	0
Palpebral Conjunctival Congestion	1
Bulbar Conjunctival Congestion	2
Both Palpebral and Bulbar Conjunctival Congestion	3

Burning sensation (Usha-Dah)

No Burning sensation	0
Burning sensation on exposure to sunlight	1
Intermittent Burning sensation	2
Continuous Burning sensation	3

Lacrimation (Ashru-Srava-Muhurmuhur Srava)

No Srava	0
Occasional Srava (on exposure to sunlight) not affecting routine work	1
Continuous Srava affecting routine work	2

Photophobia (Prakash Ashayata)

No photophobia	0
Photophobia only during exposure to sunlight	1
Intermittent photophobia	2

Foreign body sensation (Sangharsh-Shookpuranabhta)

No F.B. sensation	0
Occasional F.B. sensation	1
Intermittent F.B. sensation	2
Continuous F.B. sensation	3

Mucopurulent discharge (Updeh-Pichchil Srava)

No Pichil Srava (no discharge)	0
Pichil Srava not requiring moping	1
Pichil Srava causing sticking of lids in morning	2

Oedema (Akshi Shopha)

No Oedema	0
Mild Oedema	1
Moderate Oedema with lids open	2
Severe Oedema with difficulty in opening lids	3

Congestion (Rag, Lohit Netrata-Redness)

Palpebral Conjunctival (Antarvartama)

No congestion	0
Congestion with clear pattern of blood vessels	1
Congestion with poorly visible pattern of blood vessels	2
Velvety conjunctiva or loss of blood vessels pattern	3

Bulbar Conjunctival (Akshigolak Twak)

No congestion	0
Mild congestion	1
Conjunctival congestion in palpebral aperture	2
Conjunctival congestion in whole of Bulbar conjunctiva	3

Chemosis

No Chemosis	0
Mild Chemosis	1
Chemosis not overlying cornea	2
Chemosis overlying cornea	3

Symptoms like Colored halos, Headache, Papillary hypertrophy; Preauricular lymphadenopathy was evaluated on the basis of presence or absence.

Overall Assessment of the Therapy

To assess the overall effect of the therapy following criteria was laid down.

Grade-I: Complete remission/cured

More than 80 % relief in symptoms and signs of the disease

Grade-II: Markedly Improved

More than 65 % relief in symptoms and signs of the disease

Grade-III: Mildly Improved

More than 50 % relief in symptoms and signs of the disease

Grade-IV: No Improvement/unchanged

Less than 50 % relief in signs and symptoms of the disease

Total effect of therapies was assessed in two groups on the basis of above first 3 criteria's. Patients fulfilling two or more of these criteria's are considered in that particular group.

Method of Preparation of Drug

Rasanjana – Honey (R.H. eye drops)

Sterile double distilled water and honey is taken in the ratio of 1:1.86 i.e. in the 100 ml of solution 65 ml of honey and 35 ml of distilled water is taken into an autoclaved beaker. Then Rasanjana is added in the ratio of 1: 100 in this solution to make it 1 % concentrated. Then this solution is mixed with stirrer until all the Rasanjana dissolved. Then this solution is filtered with the help of autoclaved filter paper no. 1. Then with the help of pipette this prepared drug is poured into autoclaved 10 ml disposable bottles.

Rasanjana – Rose water eye drops (R.R. Eye drops)

In this eye drops we have taken Rose water of I.H.B.T. In rose water, Rasanjana is added in the ratio of 1: 100 to make it 1 % concentrated. Rest of the procedure remains same as described.

Out of 38 patients 33 patients (18 in Gr. I and 15 in Gr. II) completed the trial satisfactorily. In Group-I, 7 patients are cured, 8 patients shows markedly relief, 3 patients shows mildly relief. In Group-II, 2 patients are cured, 2 are markedly relief, 5 patients mildly relief and 6 patients are unchanged. Both the Groups were given treatment for 7 days and followed for two weeks at the interval of one week after completion of trial. The effect of the drug was evaluated and it was found that the therapy provided highly significant relief to the patients.

RESULTS

Maximum no. of patients were of age group 21 to 60 years (44.85 %), males (60.5 %), Hindu (97.36 %), unmarried (55.26 %) and resident of rural area (100 %).

Majority of patients registered were that of Kapha Pittaja Prakriti (50 %), Madhyam Dehabala (60.5 %), Sam Agni (57.9 %), Madhyam Koshtha (55.3 %), Non vegetarian (71.1 %), Sound sleep (73.7 %), Predominance of Madhura rasa (52.5 %).

Majority of the patients registered were (76.3 %) had symptom of Aama (44.7 %) had no addiction, (50 %) had good appetite, (76.3 %) had medium socio economic status.

Maximum number of patients had onset of disease in season of spring (60.5 %). Family history was reported only by (39.5 %) and past history of relevant/same disease was reported by (57.9 %) patients.

General feature like (symptoms) Redness, MP discharge was found in all patients (100 %), Lacrimation (76.3 %), Edema (73.7 %), Burning sensation (63.1 %), Foreign body sensation (63.1 %), Photophobia (52.6 %), Headache (42.1 %) and also Colored halos (39.5 %) was found in majority of patients.

Majority of patients reported with Papillary hypertrophy (68.4 %), Palpebral Conjunctival congestion (100 %), Bulbar Conjunctival congestion (100 %), Chemosis (94.7 %), Pre auricular lymphadenopathy (79 %), Petechial hemorrhages (68.4 %).

Clinical Profile (Effect of Therapy)

(A) In Group-I

Rasanjana Honey (R.H.) eye drops Treated Group

The results showed that therapy provided significant relief in Redness (77.45 %), Mucopurulent discharge (76.5 %), Burning sensation (74.22 %), Photophobia (93.5 %), Lacrimation (82.67 %), Colored halos (76 %), Foreign body sensation (73.22 %) and Headache (72.13 %). The therapy also provided relief in Palpebral and Bulbar Conjunctival congestion by (67.37 %) and (72.95 %) respectively. Papillary hypertrophy improved by (66.66 %), Edema (80.12 %), Chemosis (80.04 %), Petechial hemorrhages (71.42 %) and Pre auricular lymphadenopathy (62.29 %) which is also significant statistically.

Status of Treatment

In the present study in this group 7 patients were completely cured, 8 other showed marked improvement and 3 patients were improved.

(B) In Group-II

Rasanjana Rosewater (R.R.) eye drops Treated Group

The results also showed that therapy provided significant relief in Redness (56.41 %), Mucopurulent discharge (21.50 %), Burning sensation (54.88 %), Photophobia (62.24 %), Lacrimation (45.2 %), Colored halos (37.73 %), Foreign body sensation (56.62 %) and Headache (52.17 %). The therapy also provided relief in Palpebral and Bulbar Conjunctival congestion by (34.19 %) and (38.87 %) respectively. Papillary hypertrophy improved by (50 %), Edema (60.75 %), Chemosis (32.25 %), Petechial hemorrhages (50 %) and Pre auricular lymphadenopathy (31.30 %) which is also significant statistically.

Status of Treatment

In the present study in this group 2 patients were completely cured, 2 other showed marked improvement, 5 patients were improved and 6 patients showed no relief.

Thus the above results of Gr-I and Gr-II shows significant relief statistically and difference in relief percentage between Gr - I and Gr - II was observed. Group - I showed more relief in symptoms. During the course of therapy and after withdrawal there is no side, Toxic or adverse (unto want) effect of the drug (Rasanjana honey and Rasanjana rose water eye drops) was observed from any subjects of both the groups. It is proved that drug is safe from unwanted effects.

Table 2: General feature (Symptoms and signs) wise distribution of 38 patients

S.No.	General Feature Symptoms	No. of Patients		Total	Percentage
		Gr-I	Gr-II		
1.	Redness	20	18	38	100
2.	Burning sensation	14	10	24	63.1
3.	Lacrimation	13	16	29	76.3
4.	Discharge (MP)	20	18	38	100
5.	FB sensation	14	10	24	63.1
6.	Photophobia	11	9	20	52.6
7.	Edema	15	13	28	73.7
8.	Headache	9	7	16	42.1
9.	Color halos	8	7	15	39.5

Table 3: Summary of Clinical Profile Group I

S. No.	Signs and Symptoms	Mean Value		relief	%age	SD	SE ±	t	p
		BT	AT						
1.	FB Sensation	1.66	0.44	1.22	73.22	0.78	0.18	6.34	< .001
2.	Redness	2.44	0.55	1.85	77.45	0.62	0.14	13.09	< .001
3.	Lacrimation	1.27	0.22	1.25	82.67	0.80	0.18	5.59	< .001
4.	Photophobia	0.77	0.05	0.72	93.5	0.66	0.15	4.64	< .001
5.	MP Discharge	1.83	0.38	1.45	76.5	0.51	0.12	11.98	< .001
6.	Colored halos	0.5	0.38	0.12	76	0.50	0.11	3.28	< .001
7.	Headache	0.61	0.16	0.45	72.13	0.51	0.12	3.68	< .001
8.	Oedema	1.66	0.33	1.33	80.12	1.13	0.26	4.97	< .001
9.	Burning	1.94	0.50	1.44	74.22	0.98	0.23	6.25	< .001
10.	Conj. Congestion								
a.	(a) Palpebral	2.556	0.83	1.72	67.37	0.66	0.15	10.09	< .001
b.	(b) Bulbar	2.056	0.55	1.50	62.29	0.61	0.14	10.29	< .001
11.	Chemosis	1.944	0.38	1.55	80.04	0.70	0.16	9.36	< .001
12.	P.Hypertrophy	0.66	0.22	0.44	66.66	0.51	0.12	3.68	< .001
13.	Petechial Hae	0.77	0.22	0.55	71.42	0.66	0.12	4.61	< .001
14.	PAL	0.61	0.22	0.30	72.95	0.51	0.11	3.28	< .001

Table 4: Summary of Clinical Profile Group II

S. No.	Signs and Symptoms	Mean Value		relief	%age	SD	SE $\pm$	t	p
		BT	AT						
1.	FB Sensation	1.53	0.66	0.6	56.62	0.83	0.21	4.04	< .001
2.	Redness	2.6	1.13	1.47	56.41	0.67	0.15	9.01	< .001
3.	Lacrimation	1.46	0.8	0.66	45.2	0.89	0.23	3.76	< .001
4.	Photophobia	1.06	0.4	0.66	62.24	0.81	0.2	3.18	< .001
5.	MP Discharge	1.86	1.46	0.40	21.5	0.63	0.16	2.4	< .05
6.	Colored halos	0.5	0.33	0.20	37.73	0.41	0.1	1.87	> .05
7.	Headache	0.46	0.21	0.24	52.17	0.42	0.11	1.88	> .05
8.	Oedema	1.86	0.73	1.13	60.75	0.99	0.25	4.43	< .001
9.	Burning	1.33	0.6	0.73	54.88	0.83	0.21	3.42	< .001
10.	Conj. Congestion								
a.	(a)Palpebral	2.53	1.66	0.86	34.18	0.83	0.21	4.02	< .001
b.	(b) Bulbar	2.4	1.46	0.93	38.87	0.96	0.24	3.76	< .001
11.	Chemosis	1.944	0.38	1.55	80.04	0.70	0.16	9.36	< .001
12.	P.Hypertrophy	0.66	0.33	0.33	50.0	0.48	0.12	2.64	< .05
13.	Petechial Haemorrhage	0.80	0.40	0.40	50.0	0.50	0.13	3.05	< .001
14.	PAL	0.66	0.46	0.20	30.30	0.41	0.10	1.87	< .001

DISCUSSION

During the trial, patients were assessed on 3rd, 5th and 7th day of treatment. Hence patients were examined three times during total period of therapy. At the 7th day drug administration was stopped and patients followed up for two weeks at the interval of one week after completion of the treatment. During the course of therapy and after withdrawal there is no side, Toxic or adverse effect of the drug (Rasanjana honey and Rasanjana rose water eye drops) was observed from any subjects of both the groups. It is proved that drug is safe from unwanted effects. This study was aimed with the objectives i.e. study of Abhishyanda in context to Infective Conjunctivitis, effect of the drug; and the side or toxic effects of the drug. In the fulfilment of these objectives this is too summed up:

- Drug gives relieve in the various symptoms of Mucopurulent conjunctivitis like Foreign body sensation, Redness, Burning sensation etc.
- The drug decreases the various signs of Mucopurulent conjunctivitis like Conjunctival congestion, Chemosis, Papillary hypertrophy etc.
- During course of therapy and after withdrawal no adverse effect was noted.
- Abhishyanda disease is classified as a Raktaja⁹ type of eye disorder which means that all types of Abhishyanda will have background features of Raktaja¹⁰/Pittaja¹¹ Abhishyanda.

The effect of the drug is highly encouraging which has been observed, discussed and presented in the previous pages.

It is further suggested now that the drug Rasanjana honey eye drops should be further clinically studied on Abhishyanda i.e. conjunctivitis on a larger sample with investigations like Culture and sensitivity test and Conjunctival cytology.

CONCLUSION

This study was aimed with the objectives i.e. study of Abhishyanda in context to Infective Conjunctivitis, effect of the drug; and the side or toxic effects of the drug. Drug gives relieve in the various symptoms of Mucopurulent conjunctivitis like Foreign body sensation, Redness, Burning sensation etc. The drug decreases the various signs of Mucopurulent conjunctivitis like Conjunctiva congestion, Chemosis, Papillary hypertrophy etc. During course of

therapy and after withdrawal no adverse effect was noted. Abhishyanda disease is classified as a Raktaja type of eye disorder which means that all types of Abhishyanda will have background features of Raktaja/Pittaja Abhishyanda.

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