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Research Article

A CLINICAL EVALUATION OF PATHYADI NETRA BINDU IN THE MANAGEMENT OF KAPHAJA NETRABHISHYANDA WITH SPECIAL REFERENCE TO ALLERGIC CONJUNCTIVITIS

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ABSTRACT

Allergic conjunctivitis occurs when palpebral and bulbar conjunctiva become get inflamed due to a reaction to pollen, dander, mold or other allergy causing substance. The cornea is also involved in some forms of allergic conjunctivitis. Kaphajabhishyanda, an etymologically and clinically similar entity to allergic conjunctivitis. Kaphajabhishyanda, is defined in Ayurveda as the disease affecting all parts of the eye characterized by Guruta (heaviness of eye), Akshishopha (lid swelling), *Kandu* (itching) etc. caused by inflamed conjunctiva. A clinical evaluation of Pathyadi Netra bindu in the management of Kaphaja Netrabhishyanda with special reference to allergic conjunctivitis. To search a safe, potent and cost-effective Ayurvedic treatment for Kaphajabhishyanda a randomized clinical trial was conducted on 30 patients. All patients having signs and symptoms of Kaphajabhishyanda were selected and treated topically with Pathyadi Netrabindu for 30days. The effect of trial drug was found highly significant in symptoms of Guruta (heaviness of eye), Akshishopha (lid swelling), *Kandu* (itching) ($p < 0.0001$) and also showed significant results in conjunctival congestion and foreign body sensation. Pathyadi Netrabindu can be used as potent, safe and cost-effective treatment to ameliorate the symptoms of allergic conjunctivitis.

Keywords: Allergic conjunctivitis, Kaphajabhishyanda, Pathyadi Netrabindu, Guruta, Akshishopha, *Kandu*

INTRODUCTION

Vision is unarguably the most important of the five senses. Galan has rightly said that the eyes are indicators of the whole bodily constitution. The term Abhishyanda is used extensively in Ayurvedic literature in different contexts. In Sushruta Samhita it is mentioned that Abhishyanda is the root cause of all the eye diseases.¹ Clinical picture of Abhishyanda nearly simulate with the term of "Allergic Conjunctivitis"² mentioned in modern terminology. In the current era human beings are highly exposed to pollution and this introduces contaminants to environment that causes instability, disorder and harm to the ecosystem. Ultimately this entire polluted environment leads to decreased immunity in human body and causing allergic reaction in human body easily and it ends in a single word- Allergy. The basic reason behind the allergic reaction in the body is altered immunity or hypersensitivity. 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. Having a prevalence rate of 5-22% in general population and a recurrence rate of 41 - 62%³. Hypersensitivity of the body's immune system to these allergens is the main etiological factor and also it is common in people who have other signs of allergic diseases, such as asthma, eczema, hay fever and rhinitis. There are six varieties of Allergic Conjunctivitis viz. Simple Allergic-Conjunctivitis, Vernal keratoconjunctivitis, Atopic keratoconjunctivitis, Giant papillary conjunctivitis, Phlyctenular keratoconjunctivitis and Contact dermoconjunctivitis. Allergic Conjunctivitis is one of such conditions in which all the patients do not respond equally to available anti allergic drugs. None of the anti -allergic drugs

available in the market can cure the Allergic Conjunctivitis completely in all the patients. After stopping the treatment there may be chances to re-occur the symptoms of Allergic conjunctivitis. More over these drugs are to be used for longer period to keep the condition under control. Hence there is scope to search for better remedy from our ophthalmic Ayurvedic preparations for the conditions like Allergic Conjunctivitis.

Eye drops Formulation is most common form of common local drug used in ophthalmic practice. By keeping this point in mind eye drops formulations has been selected in this present study. In the present study Pathyadi Yoga which is mentioned in our classical text as Anjana formulation in Kaphaja Netrabhishyanda is selected. So, in this study it is planned to evaluate the efficacy of Pathyadi Yoga⁴ as eye drops in Abhishyanda and it is named as Pathyadi Netra Bindu. It contains Haritaki, Haridra and Yashtimadhu.

MATERIALS AND METHODS

Study Design: Open random single blind prospective study.

Source of data: Patients were selected from the outdoor patients attending the Netra Roga OPD of Shalakya Tantra, Department of Rishikul Govt. Ayurvedic College, Haridwar, Uttarakhand. Ethical clearance number - RC/UAU/IEC/15-16/01

Selection of patient: A careful clinical history of all those patients complaining of Foreign Body, Watering, Redness & Itching etc., irrespective of caste, creed, race and religion.

Inclusion criteria

- Patient aged between 10-40 years
- Patients presenting with clinical features as per classics

Exclusion criteria

- Patient suffering from infective conjunctivitis or any other ocular disorders
- Patient with any other systemic or metabolic disorder.

Sample Size: Total 30 patients selected for trial were explained the nature of the study and their consent was obtained on the Performa (signs and symptoms based on both Ayurveda as well as modern literature) before inclusion in the study.

Duration of the Trial: The trial of the therapy was carried up to 30 days.

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

Subjective Parameter

Kandu (Itching)

- 0 - Absent
- 1 - A mild continuous itch (can be localized) not requiring eye rubbing
- 2 - A definite itch, the subject would like to rub eye
- 3 - An incapacitating itch which would require significant eye rubbing

Guruta (Heaviness in eyes)

- 0 - Absent
- 1 - Mild (heaviness on exposure)
- 2 - Moderate (heaviness during work)
- 3 - Severe (heaviness all time)

Muhurmuhursrawa (Lacrimation)

- 0 - Absent
- 1 - Mild (eyes feel slightly watery)
- 2 - Moderate (occasional need to wipe eyes)
- 3 - Severe (tears rolling down cheeks)

Pichchil Srava (Mucous Ropy Discharge)

- 0 - Absent
- 1 - Srava present but moping not required
- 2 - Srava present but repeated moping not required
- 3 - Srava present but repeated moping required

Akshi shopha (swelling of eye lids)

- 0 - Absent
- 1 - Mild (lids are a little puffy)
- 2 - Moderate (frank swelling of upper and lower lids)
- 3 - Severe (eyelids are swollen)

Redness

- 0- Absent (vessels normal)
- 1- Mild (some vessels definitely injected above normal)
- 2- Moderate (diffusely red eye with individual vessels dilated but still discernible)
- 3- Severe (intensely red eye with intensive dilatation of conjunctival vessels which are still but not easily visible)

Photophobia

- 0 - Absent
- 1 - Photophobia only during exposure to sunlight)
- 2 - Intermittent photophobia
- 3 - Continuous photophobia

Foreign Body Sensation (F.B.)

- 0- No F.B sensation
- 1- Occasional F.B sensation
- 2- Intermittent F.B sensation
- 3- Continues F.B sensation

Burning Sensation

- 0- Absent
- 1- Burning sensation on exposure to sunlight
- 2- Intermittent Burning Sensation
- 3- Continuous Burning Sensation

STATISTICAL ANALYSIS

Various observations made and results obtained were computed statistically using “**WILCOXAN SIGNED RANK TEST**”.

ASSESSMENT OF RESPONSE

The net result obtained by various parameters of assessment both before and after treatment was taken into consideration to assess the overall effect of the therapies. Then they were graded in terms of percentage of relief in subjective and objective parameters.

Good response or improvement - More than 65% relief in Objective and Subjective parameters.

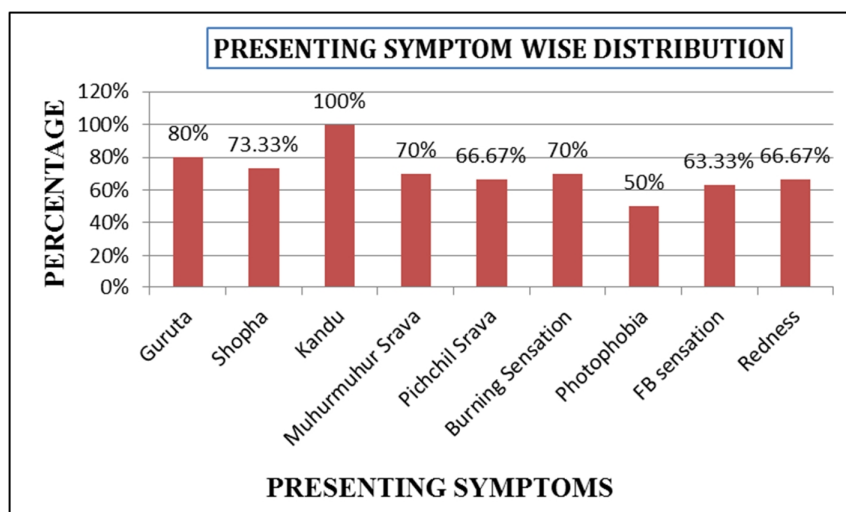
Moderate response or Improvement - 40-65% relief in Objective and Subjective parameters.

Mild response or Improvement - 15-40% relief in Objective and Subjective parameters.

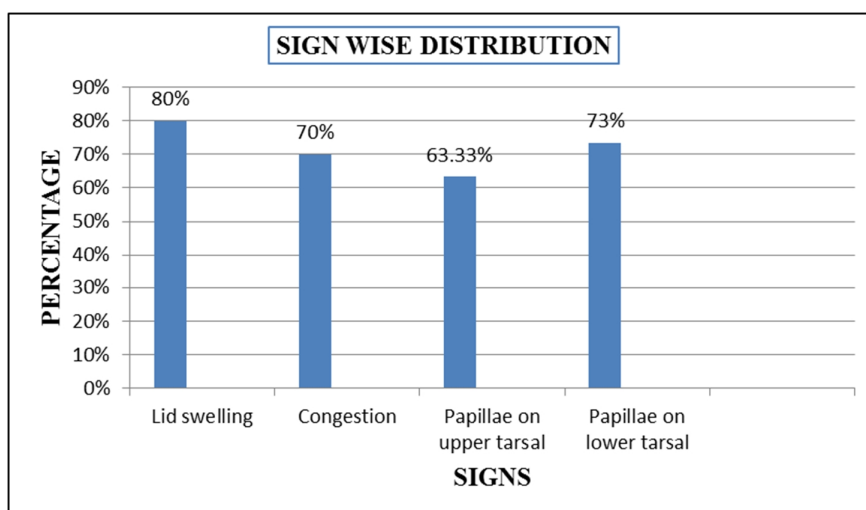
Poor response or Improvement- less than 15% relief in objective and Subjective parameters.

RESULTS

In this study 100% (30) patients were having *Kandu*, while 80%(24) patients were having *guruta* ,73.33% (22) patients were having *Shopha*, 70% (21) patients were having Muhurmuhur Srava and burning sensation respectively, 66.67% (20)patients were having Pichchil Srava and redness respectively, while 63.33% (19) patients were having foreign body sensation, while 50% (15) patients were having photophobia.



In this study 80% (24) patients were having lid swelling; while 73.3% (22) patients were having Papillae on lower tarsal, 70% (21) patients were having chemosis while 63.33% (19) we having papillae on upper tarsal.

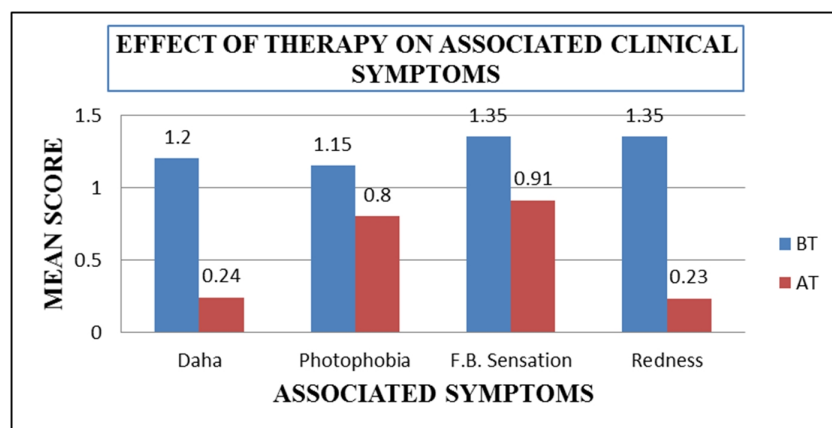
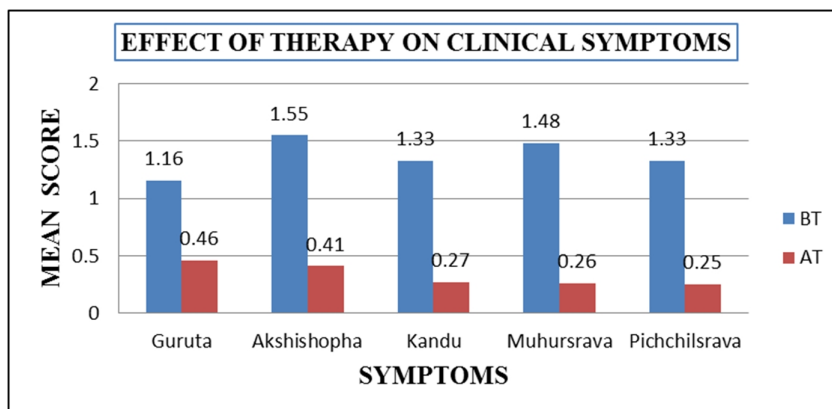


Effect of therapy on clinical symptoms

The effect of drug revealed that maximum percentage of relief was observed in the parameter of Kandru (80%) followed by Redness (71.8%), Akshi Shopha (70.87%), Burning sensation (66.67%), Pichchil Srava (65%), Muhurmuhur Srava (63.14%), Guruta (60.71%), Photophobia (31.8%), Foreign body sensation (24.73%) relief. Percentage of relief is statistically highly significant ($p < 0.001$) in Kandru, Guruta, Muhurmuhur Srava, Akshishopha, Pichchil Srava, Redness and Burning sensation. Relief in Foreign Body Sensation was statistically moderately significant while relief in photophobia was statistically significant ($p < 0.05$).

Table 1: Effect of therapy on clinical symptoms (Wilcoxon matched paired signed ranked test)

SYMPTOMS	MEAN		Mean Difference	% Difference	SD	SE	W	P
	BT	AT						
Guruta	1.16	0.46	0.71	60.71	0.62	0.13	120	<0.001
Akshi Shopha	1.55	0.41	1.1	70.87	0.70	0.15	171	<0.001
Kandru	1.33	0.27	1.07	80	0.58	0.11	351	<0.001
Muhurmuhur Srava	1.48	0.26	0.93	63.14	0.83	0.15	190	<0.001
Pichchil Srava	1.33	0.25	0.87	65	0.68	0.12	231	<0.001
ASSOCIATED SYMPTOMS								
Burning sensation	1.2	0.24	0.8	66.67	0.71	0.13	190	<0.001
Photophobia	1.15	0.8	0.37	31.89	0.55	0.10	28	<0.05
Foreign body sensation	1.35	0.91	0.33	24.73	0.55	0.10	45	<0.01
Redness	1.35	0.23	0.97	71.8	0.66	0.12	276	<0.001

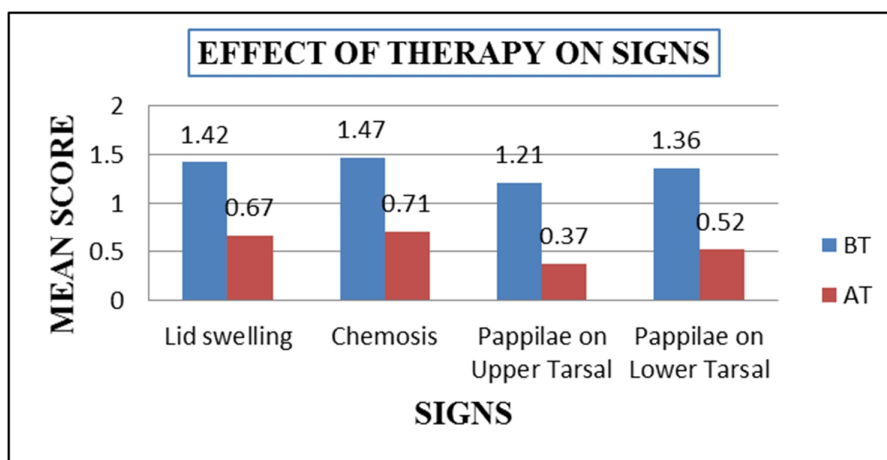


Effect of therapy on signs

The effect of drug revealed that maximum percentage of relief was observed in the parameter of Lid swelling (52.94%) followed by Chemosis (51.61%), Papillae on upper tarsal (44.06%) and Papillae on lower tarsal (44%). Result was highly significant ($p < 0.001$) in all the parameters.

Table 2: Effect of therapy on signs (Wilcoxon matched paired signed ranked test)

SYMPTOMS	MEAN		Mean Difference	% Difference	SD	SE	W	P
	BT	AT						
Lid swelling	1.42	0.67	0.75	52.94	0.24	0.09	171	<0.001
Chemosis	1.47	0.71	0.76	51.61	0.54	0.12	120	<0.001
Papillae on upper tarsal	1.21	0.37	0.53	44.06	0.57	0.10	120	<0.001
Papillae on lower tarsal	1.36	0.52	0.6	44	0.62	0.11	136	<0.001



Effect of overall therapy on 30 patients

Out of 30 patients in overall therapy, 13 patients (43.33%) were markedly improved while 15 patients (50 % patients) were moderately improved. Remaining 2 patients (6.67%) were poorly improved.

Table 3: Overall effect of therapy on 30 patients

EFFECT OF THERAPY	TOTAL	PERCENTAGE
Completely Improved	0	0
Markedly Improved	13	43.33
Moderately Improved	15	50
Mildly Improved	2	6.67
Poorly Improved	0	0

DISCUSSION

Allergic Conjunctivitis occurs when palpebral and bulbar conjunctiva get inflamed due to a reaction to pollen, dander, mold, dust, smoke or other allergy causing substance⁵. The cornea is also involved in some forms of allergic conjunctivitis. Symptoms of allergic conjunctivitis includes redness (mainly due to vasodilatation of the peripheral small blood vessels), edema (swelling) of conjunctiva, itching and watering (due to irritation of nerve endings). Itching is most typical symptom of ocular allergy and more than 75% of patients report these symptoms when seeking treatment. Treatment often relieves symptoms, but they can return if continue to be exposed to the allergen. There are infrequent serious complications, although discomfort is common⁶. Based on clinical features Abhishyanda of predominantly Kaphaja etiology can be correlated with Allergic Conjunctivitis. The features like itching, edema of conjunctiva and lid, heaviness of eyelid indicate vitiation of Kapha. Features like burning sensation indicate vitiation of Pitta. Foreign body sensation indicates vitiation of Vata. Redness suggests vitiation of Rakta. Hence, features of Allergic Conjunctivitis are mainly linked with Kaphaja activity with subsidiary action of other Doshas. The present study was planned to study the clinical efficacy of "Pathyadi Netra Bindu". We have already mentioned the properties and biological effects of Haritaki, Haridra and Yasthimadhu (ingredients of Pathyadi Netra Bindu) in details in drugs review section. The decision to choose this formulation was based on clinical presentation of the disease and anti-allergic and anti-inflammatory properties of the constituent drugs.

Effect of therapies on cardinal symptoms

Effect of Therapy on Kandu (itching)

The symptom Kandu (itching) was relieved by 80%, the result being statistically highly significant ($p < 0.001$).

Effect of Therapy on Guruta (Heaviness)

The symptom Guruta (Heaviness) was relieved by 60.71%, which was highly significant statistically ($p < 0.001$).

Effect of Therapy on Akshishopha (Swelling of eye lids)

The sign Akshishopha (Swelling of eye lids) was relieved by 70.82%, the result being statistically highly significant ($p < 0.001$).

Effect of Therapy on Muhurmuhur Srawa (Lacrimation)

The symptom Muhurmuhur Srawa (Lacrimation) was relieved by 63.14%, the result being highly significant statistically ($p < 0.001$).

Effect of Therapy on Pichchil Srawa (Ropy discharge)

The symptom Pichchil Srawa is also Kapha predominant symptom and due to Kapha Shamak properties of Haritaki and Haridra, Pichchil Srawa was relieved by 65% which is highly significantly ($p < 0.001$).

Effect of Therapy on Burning Sensation

The symptom of burning sensation was relieved by 66.67%, the result being highly significant statistically ($p < 0.001$). Burning sensation is Pitta dominant symptom and Haritaki and Yasthimadhu of Pathyadi Netra Bindu both have Madhura Vipaka which may alleviate burning sensation.

Effect of Therapy on Photophobia

In this study symptom of Photophobia was relieved by 38.64% patients and results being significant statistically ($p < 0.05$). Photophobia is due to vitiated Pitta and Madhura Vipaka of content of Pathyadi Netra Bindu subside the vitiated Pitta and control the symptom of Photophobia.

Effect of Therapy on Foreign body sensation

The symptom Foreign body sensation was relieved by 37.1%, the result being moderately significant statistically ($P < 0.01$). It is Vata predominant character and almost all contents of Pathyadi Netra Bindu have Tridosha Shamaka properties.

Effect of Therapy on Redness

The symptom Redness was relieved by 71.8%, the result being highly significant statistically ($P < 0.001$). Redness is Pitta and Rakta predominant symptom and Haritaki and Yasthimadhu of Pathyadi Netra Bindu both have Madhura Vipaka which may control redness.

Effect of Therapy on Lid swelling

The sign Lid swelling was relieved by 52.94%, the result being statistically highly significant ($p < 0.001$) because of Kapha Shamak properties of Haritaki and Haridra, Lid swelling was relieved significantly.

Effect of Therapy on Papillae on Upper Tarsal

The sign was relieved by 44.06%, the result being statistically highly significant ($p < 0.001$). The effect can be attributed to anti-inflammatory properties of the constituents of drugs.

Effect of Therapy on Papillae on Lower Tarsal

The sign was relieved by 44%, the result being statistically highly significant ($p < 0.001$). The effect can be attributed to anti-inflammatory properties of the constituents of drugs.

FOLLOW UP: There was no change observed in the results after 1 month of follow up.

Probable mode of action of drugs

On The Basis of Rasa

Katu Rasa is Kapha Shamak, Agni Deepaka, Krimighna, Kandu Nasak, Chakshu Virechaka, Abhishyanda Nasak, Sroto Vishodhaka which alleviates itching, lid and conjunctival swelling and Guruta. Tikta Rasa is also present in most of the contents of Pathyadi Netra Bindu. Tikta Rasa has Vishaghna, Krimighna, Kandu Dahashamaka and Lekhana properties which alleviates Netrabhishyanda and itching.

On the Basis of Guna

Laghu Guna is Langhana and Shrotoshodhaka, which is present in maximum herbs of Pathyadi Netra Bindu, which alleviates Kapha. Ruksha Guna is also having Kapha Shamaka property.

On The Basis of Veerya

Ushna Veerya drug have Agnideepana and Pachana properties. Sheet Veerya of Yasthimadhu controls excessive effect of Ushna Veerya of Tikshana Netra Bindu.

On The Basis of Vipaka

Regarding Vipaka, maximum contents have Madhura Vipaka followed by Katu Vipaka. Katu Vipaka is said to be Kapha Shamaka and Madhura Vipaka has got Pitta-Shamaka and soothing effect on the tissues of eye.

PHARMACOLOGICAL ACTION OF DRUGS

- Aqueous extract of dried fruit of *T. chebula* (Haritaki) showed anti-inflammatory effect by inhibiting inducible nitric oxide synthesis.
- Aqueous extract of *T. chebula* produced an increase in humoral antibody titre and delayed type hypersensitivity (Immunomodulatory effect) in mice.
- Haritaki (*Terminalia chebula*) has anti-inflammatory, anti-allergic, immunomodulatory activity⁷.
- Turmeric (*Curcuma longa* Linn.) has anti-inflammatory and antioxidant property.
- Yasthimadhu (*Glycyrrhiza glabra*) also have anti-inflammatory, anti-allergic, immunomodulatory and antioxidant property.

CONCLUSION

It can be concluded that Pathyadi Netrabindu gave better results in providing symptomatic relief like Kandu (Itching), Guruta (Heaviness in eyes), Akshishopha (Swelling of eye lids), Muhurmuhur Srawa (Lacrimation), Raga (Congestion of conjunctiva), Pichchil Srawa (Ropy discharge), Foreign body sensation and altering the course of disease but it is a good candidate for further studies to be conducted on individual

phytochemicals present in the formulation or higher concentration of same combination.

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