Clinical Efficacy and Safety of Mahatriphaladya Ghrita in the Management of Allergic Conjunctivitis: A Prospective Open Label Multicenter Study

ABSTRACT

Introduction: Allergic conjunctivitis is a mild, nonspecific inflammation of the conjunctiva due to allergy with symptoms of conjunctival congestion, mild papillary response, and intense itching without any known specific condition for pathology to develop or with undetermined etiology that is mostly and easily attributed to allergy.

Aims and objectives: To evaluate the efficacy and safety of Mahatriphaladya Ghrita and Triphala Kwath (Aschyotana) in patients suffering from allergic conjunctivitis.

Materials and methods: A prospective, open label multicenter study was carried out at two peripheral centers of the Central Council for Research in Ayurvedic Sciences (CCRAS). Totally, 54 patients satisfying the selection criteria were enrolled from the outpatient department (OPD) of these centers and were administered Mahatriphaladya Ghrita (15 mL) twice daily on an empty stomach in the morning and 3 hours before meals in the evening with lukewarm water for 12 weeks and Triphala Kwatha (10 drops) Aschyotana twice daily for 12 weeks. All the participants were subjected to complete physical and ophthalmic examination along with blood investigations. Follow-up was done finally after 2 weeks without medication. Laboratory parameters, viz., absolute eosinophil count (AEC), liver function tests, kidney function tests, lipid profile, total leukocyte count (TLC) were assessed at baseline and at the end of the treatment period of 12 weeks (i.e., 84th day). Paired sample t-test was used to compare mean change from baseline to the treatment period of 12 weeks (i.e., 84th day). Paired sample t-test was used to compare mean change from baseline to the 84th day on the outcome variables assessed by visual analog scale (VAS, 0–100 mm) and on the laboratory examination.

Results: At the end of 12 weeks, compared with baseline, statistically significant improvement was observed in symptoms, viz., redness, anxiety, lacrimation, photophobia, burning, and foreign body sensation (p < 0.001). The treatment was found to be safe and effective in the subjects of allergic conjunctivitis as all the safety parameters were within the stipulated range. No adverse drug reactions or adverse events were reported during the trial period.

Conclusion: Mahatriphaladya Ghrita and Triphala Kwath (Aschyotana) administered in the above-mentioned dose were found effective and safe in patients suffering from allergic conjunctivitis.

Keywords: Allergic conjunctivitis, Mahatriphaladya Ghrita, Triphala Kwath.


Source of support: Nil

Conflict of interest: None

INTRODUCTION

Allergic conjunctivitis is a mild, nonspecific inflammation of the conjunctiva due to allergy with symptoms of redness (mainly due to vasodilatation of the peripheral small blood vessels), edema (swelling) of the conjunctiva, itching (most typical symptom of ocular allergy), and increased lacrimation (production of the tears) without any known specific condition for pathology to develop or with undetermined etiology that is mostly and easily attributed to allergy. Symptoms are usually worse for patients when weather is warm and dry, whereas cooler temperatures and rain tend to minimize symptoms. It is a very common ocular problem in routine ophthalmic practice. Conjunctiva is highly sensitive of about ten times more than skin. It has been reported that allergic conjunctivitis alters patient’s routine limiting certain activities such as going outdoors, reading, sleeping and driving in addition to the physical discomfort. The symptoms are due to release of histamine and other active substances by mast cells, which, in turn, stimulate dilatation of blood vessels, irritate nerve endings, and increase tear secretion. Therefore, treating patients with allergic conjunctivitis may improve their everyday quality-of-life.
Modern trend of management of such conditions advocates avoidance of the allergen and treatment with either topical or systemic steroids/decongestant drops/mast cell stabilizers along with antihistamine and anti-inflammatory agents. This management is not satisfactory and seems to be temporary, used only during exacerbations and also has its side/adverse effects. Considering this, it becomes necessary to find out a safe and effective drug, which could treat such conditions. There is a vivid description of many Ayurvedic formulations and procedures in Ayurveda classics, which are beneficial in the treatment of such conditions.

Oral administration of Ayurveda medicines and Netra Kriya, such as Aschyotana, tarpana, etc., are advocated in Ayurveda classics for the management of conjunctivitis. Mahatritipladadya Ghrita and Triphala Kwatha Aschyotana are the most commonly used regimens for the treatment of such conditions and an open label multicenter study was carried out at OPD level at two CCRAS institutes on 54 cases. Results were analyzed and assessed using appropriate statistical tools on various clinical parameters.

OBJECTIVES
To evaluate the efficacy and safety of two classical Ayurvedic formulations Mahatritipladadya Ghrita and Triphala Kwatha Aschyotana in the patients of allergic conjunctivitis.

MATERIALS AND METHODS
Study Design
The study was a prospective open label multicenter trial executed at two peripheral centers of CCRAS, Ministry of AYUSH. The study was approved by the Institutional Ethics Committee of both the participating centers and was done in accordance with the World Health Organization—Good Clinical Practice Guidelines. The clinical trial has also been registered in Clinical Trial Registry of India (CTRI/2012/07/002777).

Study Participants
A total of 54 participants were enrolled at the two centers, viz., Regional Ayurveda Research Institute for Infectious Diseases, Patna and Central Ayurveda Research Institute for Cardiovascular Diseases, New Delhi, India, in the trial after obtaining the written informed consent. Patients were screened in accordance with the inclusion and exclusion criteria mentioned in the protocol.

Inclusion Criteria
Patients of either sex aged between 16 and 35 years, presenting with signs and symptoms of allergic conjunctivitis who are willing and able to participate for a period of 14 weeks were included in the study.

Exclusion Criteria
Patients having any complications with corneal involvement, conjunctivitis other than allergic, disease of lacrimal system/genetic predisposition to allergy/concurrent serious hepatic disorder, renal disorders, abnormal lipid profile, severe pulmonary dysfunction/uncontrolled diabetes mellitus or poorly controlled hypertension/pregnant or lactating females/patients on steroids, oral contraceptive pills or estrogen replacement therapy/smokers/alcoholics/drug abusers/patients on long-term drug treatment as in rheumatoid arthritis, psycho-neuro-endocrinal disorders/hypersensitivity to any of the ingredients of the trial drug/patients who have undergone any clinical trial during past 6 months were excluded from the study.

Study Interventions
The study medications included quality-assured Mahatritipladadya Ghrita in the dose of 15 mL twice daily, which was given with lukewarm water (empty stomach in the morning and 3 hours before meals in the evening) for a period of 12 weeks and topical instillation (Aschyotana) of 10 drops of Triphala Kwatha in the conjunctival sac in supine position was done twice a day using all aseptic measures for 12 weeks.

Before treatment, all subjects were subjected to a preparatory phase comprising Dipana for 3 days with Hingvastaka Churna 3 to 5 gm (based on assessment of Agni) orally before meal twice a day with lukewarm water followed by Virechana with Avipattikar Churna 5 gm once at bedtime with lukewarm water. The patients were also guided regarding pathya–apathya and about hygienic conditions.

Study Procedure
On the enrolment day at baseline (Visit 1), the patient’s demographic profile, medical history, general and systemic examination, and ophthalmic examination were done and recorded. Subsequent visits were planned at an interval of 2 weeks [14th day (Visit 2), 28th day (Visit 3), 42nd day (Visit 4), 56th day (Visit 5), 70th day (Visit 6), and 84th day (Visit 7)]. Patients were assessed and given study medications at each subsequent visit until the 84th day. There was also a without-medication follow-up after 2 weeks of the 84th day visit. Details of clinical assessment and study schedule are given in Flow Chart 1.

At the study site, data of all the patients were recorded in predesigned case report forms (CRFs) and were also
entered in electronic formats (e-formats) designed in MS Excel with many data validation checks to ensure correct data entry. The e-formats and Xerox of the CRFs along with the laboratory investigations reports of the patients were sent by the participating centers to the Council’s headquarters on a weekly basis for the purpose of clinical trial monitoring.

Out of the total 54 patients enrolled in the study, 3 dropped out during the course of the study. Intention-to-treat analysis was done and the data of all those patients who have completed at least 14th day visits were imputed by last observation carried forward (LOCF) method. Patients who dropped out after baseline visit only were excluded from analysis. Hence, data of a total of 54 patients were used for statistical analysis. Flow Chart 2 shows the outflow of the patients in the study.

Efficacy Evaluation through Outcomes

The outcome of the study was symptomatic improvement in redness, anxiety, lacrimation, photophobia, burning sensation, foreign body sensation assessed by VAS (0–100 scale) at every follow-up, i.e., baseline, 14th day, 28th day, 42nd day, 56th day, 70th day, 84th day, and 98th day.

Statistical Analysis

The data of enrolled participants for whom the values for baseline visit and at least one subsequent visit after taking the study medication were available have been used for analysis.

The LOCF method was used for handling the missing data. Demographic profile and baseline characteristics of the patients for all the discrete variables have been expressed as frequency and percentage. The data for all the continuous variables have been represented as mean and standard deviation (SD). Before and after treatment, data of the patients have been analyzed using paired sample t-test on the outcome variables assessed by VAS and on the laboratory examination. The p-value of <0.05 has been considered as significant.

RESULTS

Data of a total of 54 patients (32 male and 22 female) were used for statistical analysis, out of which the maximum patients were in the age group of 16 to 20 years. Table 1 shows the demographic profile of the patients. Totally, 24 (44.4%) patients were of vataja–pitta sharirik prakriti.
It was also observed from data that the maximum number of patients [35 (64.8%)] were in desk work and 7 (13.0%) were in field work/field work with physical labor. Maximum numbers of patients 41 (75.9%) were residing in urban area.

It was observed that 38 patients (70.4%) were allergic to some material and 29 (76.3%) of these patients had dust allergy.

It was also noticed that 42 (77.8%) patients were nonvegetarian; addiction of any kind was not found in 96.3% of cases, while chewing tobacco was observed in 3.7% of cases.

Oral administration of Mahatriphaladya Ghrita and Triphala Kwath Aschyotana for 84 days revealed significant improvement in the common complaints of patients suffering from allergic conjunctivitis. The complaint of redness was observed in 56.48% patients at baseline, which was reduced to 5.09% patients at the end of treatment (<0.001). Complaint of anxiety was observed in 32.41% patients at baseline, which was reduced to 4.63% patients at the end of treatment (<0.001), lacrimation was observed in 49.07% patients at baseline, which was reduced to 5.56% patients at the end of treatment (<0.001), photophobia was observed 41.2% patients at the baseline, which was reduced to 6.48% at the end of treatment (<0.001), and foreign body sensation was observed 39.35% at baseline, which was reduced to 3.24% at the end of treatment (<0.001). Effect of the treatment on chief complaints/Outcome parameters are given in Graph 1.

Effect of the study medications was also assessed by paired t-test on hematological parameters compared at baseline and at 84th day. Table 2 shows the results of the analysis on hematological parameters.

**DISCUSSION**

Almost all the eye disorders have been caused by Abhishyanda and must be treated as soon as possible, otherwise its complications will become severe and will lead to difficulty in saving the eyesight.7

| Table 1: Baseline characteristics of study participants |
| Demographic profile (n = 54) |
| **Age group** | 16–20 | 29 (53.6) | 21–25 | 7 (13.0) | 26–30 | 7 (13.0) | 31–35 | 11 (20.4) |
| **Sex** | Male | 32 (59.2) | Female | 22 (40.8) |
| **Educational status** | Illiterate | 4 (7.4) | Read and write | 50 (92.6) |
| **Socioeconomic status** | Above poverty line | 49 (90.7) | Below poverty line | 5 (9.3) |
| **Habitat** | Urban | 41 (75.9) | Semirural | 2 (3.7) | Rural | 11 (20.4) |
| **Sharirik Prakriti** | Vataja | 2 (3.7) | Pittaja | 9 (16.7) | kaphaja | 0 (0.0) |
| | Vata-Pittaja | 24 (44.4) | Vata-Kaphaja | 1 (1.9) |
| | Pitta-Kaphaja | 11 (20.4) | Sannipataja | 7 (13.0) |

Values are expressed as n (%)

It was also observed from data that the maximum number of patients [35 (64.8%)] were in desk work and 7 (13.0%) were in field work/field work with physical labor. Maximum numbers of patients 41 (75.9%) were residing in urban area.

It was observed that 38 patients (70.4%) were allergic to some material and 29 (76.3%) of these patients had dust allergy.

It was also noticed that 42 (77.8%) patients were nonvegetarian; addiction of any kind was not found in 96.3% of cases, while chewing tobacco was observed in 3.7% of cases.

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Effect of the study medications was also assessed by paired t-test on hematological parameters compared at baseline and at 84th day. Table 2 shows the results of the analysis on hematological parameters.

**Effect of the Drugs on Safety Parameters**

The effect of Mahatriphaladya Ghrita was assessed using liver function tests and kidney function tests at baseline and at the end of 84th day to establish the clinical safety. Lipid profile was also assessed at baseline and at the end of 84th day. The values of these biochemical tests were found to be within the normal range during the assessment period (Table 3). These observations validate that these classical drugs are safe for human use. Further, no adverse events or adverse drug reactions were reported during the treatment period.

**DISCUSSION**

Almost all the eye disorders have been caused by Abhishyanda and must be treated as soon as possible, otherwise its complications will become severe and will lead to difficulty in saving the eyesight.7

**Table 2: Effect of the treatment on hematological parameters**

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Baseline (mean ± SD)</th>
<th>84th day (mean ± SD)</th>
<th>t-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hemoglobin (gm/dL)</td>
<td>12.507 ± 1.5312</td>
<td>12.541 ± 1.7064</td>
<td>0.228</td>
<td>0.821</td>
</tr>
<tr>
<td>TLC/cu mm</td>
<td>7287.04 ± 1891.994</td>
<td>7542.59 ± 2229.020</td>
<td>0.883</td>
<td>0.381</td>
</tr>
<tr>
<td>N%</td>
<td>54.43 ± 11.452</td>
<td>56.39 ± 10.832</td>
<td>1.293</td>
<td>0.201</td>
</tr>
<tr>
<td>E%</td>
<td>6.35 ± 6.150</td>
<td>6.15 ± 5.611</td>
<td>0.291</td>
<td>0.772</td>
</tr>
<tr>
<td>L%</td>
<td>36.61 ± 11.136</td>
<td>34.83 ± 10.147</td>
<td>1.217</td>
<td>0.229</td>
</tr>
<tr>
<td>M%</td>
<td>2.61 ± 1.071</td>
<td>2.81 ± 1.199</td>
<td>1.132</td>
<td>0.263</td>
</tr>
<tr>
<td>ESR (mm) at the end of 1st hour</td>
<td>23.09 ±14.006</td>
<td>22.17 ± 14.346</td>
<td>0.607</td>
<td>0.546</td>
</tr>
<tr>
<td>Blood sugar fasting (mg/dL)</td>
<td>84.19 ± 12.028</td>
<td>82.50 ± 8.750</td>
<td>0.986</td>
<td>0.329</td>
</tr>
<tr>
<td>*AEC cells</td>
<td>450.46 ± 466.761</td>
<td>444.15 ± 382.035</td>
<td>0.111</td>
<td>0.912</td>
</tr>
</tbody>
</table>

ESR: Erythrocyte sedimentation rate; N: Neutrophils; E: Eosinophils; L: Lymphocytes, M: Monocytes; *Absolute Eosinophil Count Minimum values at Baseline—46, Maximum value at baseline—2565; *Absolute Eosinophil Count Minimum value at 84th day—84, Maximum value at 84th day—1920
A highly polluted environment has an effect on lifestyle. Simple allergic conjunctivitis is one of the outcomes of this changing lifestyle, food habits, and polluted environment. Simple allergic conjunctivitis has an equal distribution, more or less, throughout the world, without any exception to the developed and underdeveloped countries.8

In the present study, a total of 54 patients of allergic conjunctivitis were included in the trial and studied on OPD basis. The observations and results of the study revealed that the disease is evenly prevalent in both genders and most patients were in the age of 16 to 20 years. Maximum cases (75.9%) were found to be residing in urban areas. Allergy due to dust, mites, pollens, etc., is attributed as one of the main causative factors of allergic conjunctivitis, which was quite evident in this study also as about 70.4% patients were allergic to some materials. Mostly, patients were of the Vata–pitaja prakriti and about 27.8% patients had refractive errors.

The drug interventions, viz., Triphala Kwath Aschyotana and Mahatriphaladya Ghrita orally showed marked results in the alleviation of symptoms, viz., redness, anxiety, lacrimation, photophobia, burning sensation, foreign body sensation at the end of treatment (84th day), which remained almost persistent after withdrawal of the drug on VAS. There was decrease in the mean value of AEC after the treatment, though insignificant statistically.

Mahatriphaladya Ghrita is one of the most commonly prescribed Ayurveda medications mentioned in Ayurveda classics for different Netra roga (eye disorders).

Most of the ingredients, such as Goghrta9 (clarified butter from cow’s milk), Haritaki10 (Terminalia chebula), Bibhitaki11 (Terminalia belerica), Amalaki12 (Emblica officinalis), Bhringaraja13 (Eclipta alba), Satavari14 (Asparagus racemosus),

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Baseline (mean ± SD)</th>
<th>84th day (mean ± SD)</th>
<th>t-value$^5$</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood urea (mg/dL)</td>
<td>25.011 ± 5.9317</td>
<td>25.87 ± 5.863</td>
<td>0.765</td>
<td>0.448</td>
</tr>
<tr>
<td>Serum uric acid (mg/dL)</td>
<td>4.7870 ± 0.93369</td>
<td>4.972 ± 0.9205</td>
<td>1.655</td>
<td>0.104</td>
</tr>
<tr>
<td>Serum creatinine (mg/dL)</td>
<td>0.8135 ± 0.10029</td>
<td>0.8585 ± 0.11979</td>
<td>2.810</td>
<td>0.007</td>
</tr>
<tr>
<td>SGOT (AST) (IU/L)</td>
<td>20.80 ± 5.318</td>
<td>22.96 ± 7.400</td>
<td>2.413</td>
<td>0.019</td>
</tr>
<tr>
<td>SGPT (ALT) (IU/L)</td>
<td>34.20 ± 10.164</td>
<td>38.24 ± 17.234</td>
<td>1.843</td>
<td>0.071</td>
</tr>
<tr>
<td>Total protein (gm/dL)</td>
<td>7.541 ± 0.5053</td>
<td>7.608 ± 0.4624</td>
<td>0.767</td>
<td>0.446</td>
</tr>
<tr>
<td>Serum albumin (gm/dL)</td>
<td>4.299 ± 0.3407</td>
<td>4.280 ± 0.2872</td>
<td>0.313</td>
<td>0.756</td>
</tr>
<tr>
<td>Serum globulin (gm/dL)</td>
<td>3.242 ± 0.4421</td>
<td>3.30 ± 0.373</td>
<td>0.916</td>
<td>0.364</td>
</tr>
<tr>
<td>Conjugated bilirubin (mg/dL)</td>
<td>0.5051 ± 0.17336</td>
<td>0.5146 ± 0.15456</td>
<td>0.617</td>
<td>0.540</td>
</tr>
<tr>
<td>Unconjugated bilirubin (mg/dL)</td>
<td>0.313 ± 0.0728</td>
<td>0.3381 ± 0.13190</td>
<td>1.589</td>
<td>0.118</td>
</tr>
<tr>
<td>Serum alkaline phosphatase (U/L)</td>
<td>275.31 ± 206.964</td>
<td>230.85 ± 169.968</td>
<td>2.617</td>
<td>0.012</td>
</tr>
<tr>
<td>Serum cholesterol (mg/dL)</td>
<td>185.03 ± 26.766</td>
<td>185.90 ± 25.871</td>
<td>0.363</td>
<td>0.718</td>
</tr>
<tr>
<td>Serum triglycerides (mg/dL)</td>
<td>108.13 ± 32.912</td>
<td>106.24 ± 33.673</td>
<td>0.385</td>
<td>0.701</td>
</tr>
<tr>
<td>Low-density lipoprotein (mg/dL)</td>
<td>115.208 ± 18.8845</td>
<td>116.97 ± 18.943</td>
<td>0.994</td>
<td>0.325</td>
</tr>
<tr>
<td>High-density lipoprotein (mg/dL)</td>
<td>51.039 ± 4.6542</td>
<td>50.45 ± 4.497</td>
<td>0.818</td>
<td>0.417</td>
</tr>
<tr>
<td>Very low density lipoprotein (mg/dL)</td>
<td>21.159 ± 6.5590</td>
<td>20.678 ± 6.7372</td>
<td>0.490</td>
<td>0.626</td>
</tr>
</tbody>
</table>

Values are expressed as mean (SD). $^5$Compared using paired t-test at baseline and 84th day. SGOT: Serum glutamic oxaloacetic transaminase; SGPT: Serum glutamic pyruvic transaminase; AST: Aspartate transaminase; ALT: Alanine transaminase.
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and Madhuka°5 (Glycyrrhiza glabra) of this formulation are described for their therapeutic use in eye disorders. Aschyotana, a Netra kriya karma, is often used for allergic conjunctivitis as it alleviates the inflammation, burning, redness, foreign body sensation, lacrimation, and itching in eyes.°6,°7

Triphala possesses chakshushya property and its Kashaya is mentioned in Ayurveda texts for Netra roga (eye disorders) particularly in all types of Abhisyanda (conjunctivitis),°8 owing to which Triphala Kwatha Aschyotana was used in this clinical study.

Triphala being predominantly kasayaras may have contributed in reducing congestion in the eyes.°9 It is also opined that Triphala is helpful in breaking the abhisyandata of the srotas by virtue of its ushna and ruksha properties. The tridoshahara property of Triphala is helpful in maintaining the homeostasis in the body and eye, thus preventing further pathogenesis.°° Further, Triphala is reported to be a potent free radical scavenger and possesses antioxidant, anti-inflammatory, analgesic, antibacterial, and immunomodulatory properties.°\textsuperscript{21}

CONCLUSION
This study provides the evidence in support of the potential efficacy and safety of the Mahatriphaladya Ghrita and Triphala Kwath Aschyotana in the subjects suffering from allergic conjunctivitis. About 12 weeks of treatment significantly reduced the symptoms in subjects suffering from allergic conjunctivitis, which sustained after 2 weeks follow-up also. The test drugs were found to be clinically safe as no significant changes were seen in any of the safety parameters, i.e., kidney function and liver function. No adverse drug reaction or events were also reported during the treatment period. Hence, it can be concluded that these drugs can be safely used in the subjects suffering from allergic conjunctivitis. Further study with a control group is required to corroborate the findings of the study.

ACKNOWLEDGMENTS
Authors would like to thank all the patients for their participation in the study and all the in-charges and staff of participating centers for providing logistic and technical support for data collection.

REFERENCES
हिंदी सारांश
एलर्जिक कंजनकोटवाइटिस में महात्रिफलाद्य घूड़ की आवृत्ती प्रभावकारिता एवं सुरक्षा — एक प्रस्तावित बहुकंडीय औपन लेबल अध्ययन

'आलोक श्रीवास्तव, *दीपा नवज्ज्वल, *संजयकुमार सिंह, *मुक्ति खण्डूकी, *प्रदीप दुवारा, *बबिता यादव
*राकेश राणा, *अनीता सिंधु, *दनमाला श्री, वकोले, *मुक्ति श्री, *सवामल, *मधुबन श्रीमान
*मदन पा, *पांडी, *करतार एस धीमान

परिष्कार: प्रतिवर्ष शोध्यंत्र में एलर्जिक कंजनकोटवाइटिस पर महात्रिफलाद्य घूड़ के प्रभाव का एक शिक्षितार्थक अध्ययन क्षेत्रीय आयुर्वेद अनुसंधान संस्थान वर्ष 2012-13 में नई दिल्ली, पटना में किया गया। एलर्जिक कंजनकोटवाइटिस रोग के लक्षणों की तुलना आयुर्वेद में कक्षज अभिवंदन के लक्षणों से की गई है।

क्षेत्रफ़ल: महात्रिफलाद्य घूड़ एवं जिफ्लाक्वाड में प्रभाव एवं सुरक्षा का एलर्जिक कंजनकटवाइटिस में अध्ययन करना।

साधन एवं विधिः यह एक बहुकंडीय अध्ययन है जो कि कंडीन आयुर्विदीय अनुसंधान परिषद के 2 परिषदें संस्थानों पर 54 रोगियों में चयन प्रक्रिया के अनुसार किया गया। इन रोगियों को महात्रिफलाद्य घूड़ 15 मिली. दिन में दो बार (सुबह खाली पेट और शाम में मौजूद के 3 घंटे पहले युगलक रात्री के साथ 12 सप्ताह तक दिया गया) द्विपक्षीय परीक्षण (आर्स्ट्रोटेस) 10 बूंद दिन में दो बार 12 सप्ताह तक दिया गया। सभी रोगियों में रक्त की जीवन, शासनीक नेत्र परीक्षण पूर्ण की गई थी। 2 सप्ताह के बाद बिना दवा के जीवन करने के लिए बुजुर्ग वातावरण का अनुसार रहना और पत्रकार परीक्षण किया गया। बुजुर्ग का प्रतिकूल प्रभाव (ADR), परीक्षण अभिवंदन के दौरान इंकार किया गया। गुरुपुक्ता टी-टेस्ट का इस्तेमाल सभी मापदंडों के आधार पर परिमाण से 84वें दिन के बीच तुलना किया गया। सार्वजनिक दृष्टि से विश्वसनीयता का सार्वजनिक परीक्षण (P < 0.05) पाया गया।

परिणाम: एलर्जिक कंजनकोटवाइटिस में घूड़ गए लक्षणों में सार्वजनिक आधार पर 12 सप्ताह के अंत में सार्वजनिक सुधार देखा गया जो कि 14 सप्ताह के उपरांत भी काम से रहा।

विषयवस्तु: एलर्जिक कंजनकोटवाइटिस में महात्रिफलाद्य घूड़ एवं जिफ्लाक्वाड (आर्स्ट्रोटेस), उपरांत मत्रा में प्रभावी एवं सुरक्षित पाया गया।

कुंजी शब्दः एलर्जिक कंजनकोटवाइटिस, महात्रिफलाद्य घूड़, जिफ्लाक्वाड।