To evaluate the efficacy of Gritakumari (Aloe Vera Gel) in the management of Shushkakshipaka (Dry Eye Syndrome)

Sakshi Kanaujia1*, Vishwanath2, Shamsa Fiaz

1Post Graduate, Department of Shalakya Tantra, National Institute of Ayurveda, Jaipur, India
2Post Graduate, P.G Department of Shalakya Tantra, Rishikul Government Ayurvedic College, Haridwar, India

ABSTRACT

Background: The tear film is fundamental of the maintenance of the ocular surface. Deficiency in tear quantity or quality, which can be caused by low tear production or excessive tear evaporation, results in an unstable tear film and dry eye syndrome (DES). Dry eye syndrome is characterized by symptoms of ocular dryness and discomfort. It is a disease of deficient or deranged tears and ocular surface disorder producing symptoms of discomfort, visual disturbance and tear film instability. Shushkakshipaka, an etymologically and clinically similar entity to DES, is defined in Ayurveda as the disease affecting all parts of the eye characterized by Paka (inflammation) due to Shuskatva (dryness) caused by altered coherence of Ashru(tears) with ocular surface or due to lack of Ashru. Objective: To compare the effect of Gritakumari (Aloevera gel) and artificial tear drops Carboxy methyl cellulose [CMC 0.5%] in the management of Shushkakshipaka (dry eye syndrome). Design: Randomized prospective clinical control trial. Material and methods: Patients were divided into two groups 18 in group A(trial group) and 17 in group B(control group). Group A was treated with Aloevera gel and group B treated with artificial tear drops 4 times a day for one month. Results: The effect of Aloevera gel was found to be equivalent to CMC 1%. Conclusion: Gritakumari (Aloevera gel) can be used as potent, safe and cost effective treatment to ameliorate the symptoms of DES.

1. Introduction

Dry eye is one of the most frequently encountered ocular morbidities, a growing public health problem and one of the most common conditions seen by eye care practitioners[1]. In the light of new knowledge about the role of ocular surface inflammation and tear hyperosmolarity in dry eye and the effects of dry eye on visual function, the International Dry Eye Workshop (DEWS) defined dry eye as a “Multifactorial disease of the tears and ocular surface that results in symptoms of discomfort, visual disturbance, and tear film instability. Shushkakshipaka, an etymologically and clinically similar entity to DES, is described in Ayurvedic texts whose etiology, pathogenesis and clinical features of dryness and inflammation of the ocular surface remarkably correlates with that of DES. Shushkakshipaka is a Sarvagata Roga, that is, disease affecting all parts of the eye; a Vataja or Vata-Pittaja/Vata-Raktaja curable disease[5]. While the description in Sushruta demarcates the early stage, Vagbhata gives details of a fully-fledged picture including Paka (inflammatory) stage of the disease[6-8]. Ayurvedic texts enlist a number of treatment modalities for treatment of the disease, including both localized and systemic measures. In view of the magnitude of the problem, this case study was...
undertaken to achieve cost-effective treatment modalities of Ayurveda in treating this chronic ailment.

In the present clinical study, an attempt was made to observe the role of Ghritakimari (Aloe Vera gel) in dry eye syndrome. Aloe vera has wide spectrum of therapeutic and medicinal properties. The gel has lubricating[9], wound healing[10] and anti-inflammatory properties[11], as researched in previous studies, this clinical study was planned to evaluate the effect of Ghritakumari gel (Aloe vera gel) as compared to the CMC 1% in clinical parameters of dry eye.

2. Materials and Methods

Design: Randomized prospective clinical control trial.

Selection of patients

Patients were selected from the Shalakya Tantra (Netra roga) Out Patient Department of the National Institute of Ayurveda, Jaipur.

Inclusion criteria

- Patients between the age group of 30 to 70 years.
- Patients having clinical features with dry eye and those mentioned Shushakshipaka will be included.

Exclusion Criteria

- Patients with history of ocular trauma.
  - Patients with ocular surgery prior to three month of study.
  - Patients with visual media disorder or any other degenerative disorder of eye.
  - Patients suffering from any systemic/metabolic disorder.

Grouping and Dosing

Group A

In Trial group 18 patients was treated with drops of Aloe vera gel topically 4 times per day for 28 days.

Group B

In Control group 17 patients was treated with 1% ophthalmic solution of Carboxy methyl cellulose topically 4 times per day for 28 days.

Preparation of fresh Ghritakumari gel

Fresh gel of Ghritakumari was extracted from Ghritakumari leaf before application in the eye. Leaf was washed, dried well and gel was collected by giving an incision on leaf surface. Deep seated pulp was directly applied to the eye as eye drops.

Assessment criteria

Subjective criteria

Rukshata (dryness), Kunita (shrunken), Darunata (hardness), Aavila darshan (blurring of vision), Karacho unmilna (difficulty in opening and closing of eye), Gharsha (foreign body sensation), Toda (stinging pain), Bheda (tearing pain) and Updeha (sticking of eye).

Objective criteria

Schirmer’s - I test
Tear film breakup time

Assessment criteria

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

Observation
Results

Chart No.3: Effect of Aloe vera gel (Group A) and artificial tear drop (Group B) in subjective parameter

Chart No.4: Effect of Aloe vera gel (Group A) and artificial tear drop (Group B) in objective parameter

Table No.1: Comparative effect of both groups on clinical symptoms

<table>
<thead>
<tr>
<th>Symptom Group</th>
<th>Group</th>
<th>N</th>
<th>Mean score</th>
<th>% Relief</th>
<th>SD ±</th>
<th>SE ±</th>
<th>‘t’</th>
<th>‘p’</th>
<th>M.W</th>
<th>‘P’</th>
</tr>
</thead>
<tbody>
<tr>
<td>RUKSHTA</td>
<td>A</td>
<td>16</td>
<td>1.05</td>
<td>65.52</td>
<td>0.539</td>
<td>0.127</td>
<td>3.8</td>
<td>0.0006</td>
<td>53.5</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>16</td>
<td>0.470</td>
<td>50</td>
<td>0.514</td>
<td>0.124</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>KUNITA</td>
<td>A</td>
<td>4</td>
<td>0.5</td>
<td>33.33</td>
<td>0.577</td>
<td>0.288</td>
<td>0.26</td>
<td>0.7980</td>
<td>9</td>
<td>&gt;0.05</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>5</td>
<td>0.4</td>
<td>28.57</td>
<td>0.54</td>
<td>0.244</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DARUNA</td>
<td>A</td>
<td>4</td>
<td>1.25</td>
<td>58.53</td>
<td>0.5</td>
<td>0.56</td>
<td>1.4</td>
<td>0.2070</td>
<td>4.5</td>
<td>&gt;0.05</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>4</td>
<td>0.75</td>
<td>29.22</td>
<td>0.5</td>
<td>0.25</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AAVILA DARSHAN</td>
<td>A</td>
<td>16</td>
<td>1</td>
<td>63.62</td>
<td>0.554</td>
<td>0.148</td>
<td>2.012</td>
<td>0.0543</td>
<td>69</td>
<td>&gt;0.05</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>13</td>
<td>0.615</td>
<td>42.10</td>
<td>0.615</td>
<td>0.140</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>KARACHO UNMILNA</td>
<td>A</td>
<td>11</td>
<td>0.9</td>
<td>69.24</td>
<td>0.31</td>
<td>0.1</td>
<td>1.88</td>
<td>0.0756</td>
<td>32</td>
<td>&gt;0.05</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>09</td>
<td>0.55</td>
<td>41.67</td>
<td>0.52</td>
<td>0.17</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GARSHA</td>
<td>A</td>
<td>17</td>
<td>1.11</td>
<td>74.07</td>
<td>0.68</td>
<td>0.15</td>
<td>2.33</td>
<td>0.0271</td>
<td>86</td>
<td>&lt;0.05</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>16</td>
<td>0.65</td>
<td>42.30</td>
<td>0.49</td>
<td>0.11</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTA</td>
<td>A</td>
<td>3</td>
<td>0.65</td>
<td>33.33</td>
<td>0.58</td>
<td>0.33</td>
<td>0.70</td>
<td>0.5185</td>
<td>3</td>
<td>&gt;0.05</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>8</td>
<td>0.875</td>
<td>58.34</td>
<td>0.353</td>
<td>0.125</td>
<td>1.96</td>
<td>0.0659</td>
<td>25</td>
<td>&gt;0.05</td>
</tr>
<tr>
<td>UPDEHA</td>
<td>A</td>
<td>11</td>
<td>0.454</td>
<td>33.33</td>
<td>0.522</td>
<td>0.157</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table No. 2: Comparative effect of both groups on objective parameters

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Group</th>
<th>Eye</th>
<th>N</th>
<th>Mean score</th>
<th>% Relief</th>
<th>SD ±</th>
<th>SE ±</th>
<th>‘t’</th>
<th>‘p’</th>
<th>M.W</th>
<th>‘P’</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schimer’s Tear Test</td>
<td>RE</td>
<td>A</td>
<td>11</td>
<td>0.81</td>
<td>50</td>
<td>0.40</td>
<td>0.122</td>
<td>0.45</td>
<td>0.6595</td>
<td>56</td>
<td>&gt;0.05</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>13</td>
<td>0.69</td>
<td>50</td>
<td>0.480</td>
<td>0.133</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>LE</td>
<td>A</td>
<td>11</td>
<td>0.90</td>
<td>55.55</td>
<td>0.539</td>
<td>0.162</td>
<td>1.385</td>
<td>0.1794</td>
<td>56</td>
<td>&gt;0.05</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>12</td>
<td>0.384</td>
<td>27.78</td>
<td>0.50</td>
<td>0.140</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TFBUT</td>
<td>RE</td>
<td>A</td>
<td>14</td>
<td>0.857</td>
<td>66.7</td>
<td>0.66</td>
<td>0.177</td>
<td>1.649</td>
<td>0.1127</td>
<td>52</td>
<td>&gt;0.05</td>
</tr>
<tr>
<td></td>
<td>LE</td>
<td>A</td>
<td>11</td>
<td>0.50</td>
<td>38.89</td>
<td>0.513</td>
<td>0.138</td>
<td>2.083</td>
<td>0.0486</td>
<td>48</td>
<td>&gt;0.05</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>12</td>
<td>0.53</td>
<td>35</td>
<td>0.518</td>
<td>0.143</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. Discussion

There is ample description of Sushkakshipaka in Ayurvedic literature. It has been described as a Vata or Vata-Pitta eye disorder affecting all parts of the eye which is curable by medical means. It is clear from the etymological derivation of the Sushkakshipaka that the disease can occur in two ways, viz., either by absent or decreased secretion of tears or their altered coherence with the ocular surface resulting in paka (inflammation) of the Netra. Similar classification of dry eye in two broad categories of tear deficient and tear sufficient dry eye is in vogue in modern ophthalmological literature.

Whereas the abstraction of tear is described vividly in modern literature, it is not so in texts of Ayurveda. To ascertain the Ayurvedic concept of fluids which bathe the ocular surface, a thorough search was done which yielded...
that though no structure was linked with the formation of Ashra in Ayurveda, the ancient sages knew the importance of tear fluid very well and drainage pathway of lacrimal system was known to them. It was concluded from the evidences scattered in Ayurvedic literature that Ashra is derived from the Rasa Dhatu, and its functions in the eye is similar to that of Rasa Dhatu in the body. It restores the wear and tear and provides nutrition to the outer tunics. It lubricates the eye and keeps the eye wet[12]. A number of treatment modalities have been described in Ayurveda for the management of Sushkkakshipaka. It not only includes localized measures, but also systemic use of drugs has also been indicated. This variety of treatment modalities points toward the diverse pathology of the disease.

Clinical profile

Majority of the patients were in the age group of 51–60 years which indicates decrease in tear production with age. Majority of patients were female of postmenopausal age reflecting toward the role of hormonal changes in the causation of DES. Most of the patients registered in this study were Hindu of urban habitat signifying predominance of this community in the area where the trial was conducted. Most of the patients were having Vata-Pitta Prakriti and as the disease is Vata-Pitta dominating, the person with similar Prakriti is more prone to develop this disease. Thus, the disease was a challenge to treat due to the similarity in Kala (age group affected), Prakriti (Vata-Pitta Prakriti of the patients) and Dosha (Vata-Pitta disease) besides being of Dvidosha mixture nature[13]. Maximum number of patients had Madhyam Dehabala. It can be ascribed to the age (middle age) group affected by this disease in which Pitta and Vata show their predominance respectively.

Probable action of drug (aloe vera gel)

Aloe vera has a wide spectrum of therapeutic and medicinal properties. The therapeutic uses of Aloe vera have been mentioned in ancient texts like Bhavprakash Niganta[14] Kaidyeva Nigantu[15], Sharanagadh Samita[16]. The herb (Aloe vera) proposed in the clinical study has been used for various disease like Vrana, Kushtha, Gulma, Pitharoga, Yakritrividhi, Kaphaja jwara, Granthi, Agnidagdha, Vishaphota, Pita- rakta vikar, Chudraroga etc. Various experimental as well as clinical studies suggest the role of Aloe vera in the management of Dry eye[09], inflammation[17] and skin disorder[18] etc. considering these factors this drug had been selected for assessing its symptoms for dry eye.

Group A (Trial group) has shown significantly better results in the chief complaints like Ruksta, karachoumlna, Garsha and in tear quantity tests (Schirmer tear test ), Tear film stability test(Tear film break up time) than group B(control group). In rest of signs and symptoms trial drug was almost equally effective to control group.

4. Conclusion

The effect of Ayurvedic treatment was found to be equivalent to standard therapy of tear supplementation (CMC eye drops), although Aloe vera gel provided more relief in certain symptoms like, rukshata and krachoumlna etc., This Ayurvedic management can be used as a potent, safe and cost-effective treatment to ameliorate the symptoms of DES. This is a very small sample and short duration study, so it is suggested that large sample and long duration studies should be conducted, with Aloe vera gel. This study is an eye opener for future research scholars to study the efficacy of Aloe vera gel in the management of disease Shushkakshipaka- Dry eye on large scale.

References


Source of support: Nil, Conflict of interest: None Declared

All © 2015 are reserved by International Journal of Pharmaceutical and Medicinal Research