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### REVIEW OF COMPLEMENTARY AND ALTERNATIVE MEDICINE IN TREATMENT OF OCULAR ALLERGIES

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#### ABSTRACT

Ocular allergy is a common complaint of allergy sufferers, many of whom may choose to use complementary and alternative medicine in the treatment of these symptoms. Certain herbs including *Euphrasia officinalis*, *Petasites hybridus* and *Argemone mexicana* have been evaluated in control studies in the treatment of ocular allergy. Honey is no more effective than placebo in the treatment of ocular allergy. Homeopathy has shown conflicting results in the treatment of ocular allergy, while alternative forms of immunotherapy have been shown to develop immunologic tolerogenic effects in the control of the condition. Several forms of complementary and alternative medicine have been studied for their effectiveness in treatment of ocular allergy symptoms. Further research is needed to assess mechanisms of action and to establish practice guidelines for the use of these modalities. In this review major complementary and alternative medicine modalities including herbal therapies, acupuncture, homeopathy, alternative immunotherapy and behavior modification are assessed for evidence of their effectiveness in the treatment of ocular allergy symptoms.

**Key Words:** Ocular allergy, Complementary medicine, Alternative medicine, Placebo, Immunotherapy, Acupuncture.

#### INTRODUCTION

Ocular allergies including conjunctivitis, or pinkeye, is an inflammation of the membrane covering the inside of eyelids and the outer part of eye. It is generally not serious but can be highly contagious. Conjunctivitis often feels like someone has something in his/her eye that he/she can't get out [1].

#### Signs and Symptoms

Conjunctivitis causes the following symptoms in one or both eyes [2]

- Redness and tearing
- Itching
- Swollen eyelid
- Discharge (watery or thick)
- Crust that forms overnight
- Sensitivity to light
- Gritty feeling

#### What Causes It

Conjunctivitis is most often the result of viruses, such as those that cause the common cold. Other causes can be bacterial infections, allergies, chemicals, irritation from contact lenses, or eye injury. Viral and bacterial conjunctivitis are very contagious [3]. Some studies suggest that the severity of the disease is significantly associated with sun exposure.

#### Treatment Options

Conjunctivitis is generally not a serious problem and often will go away by itself. One should still, however, see the doctor. Chronic conjunctivitis, if left untreated, can cause permanent eye damage [4].

Treatment varies depending on what is causing the inflammation. Bacterial conjunctivitis is generally treated with antibiotic eyedrops or ointment. Viral conjunctivitis does not respond to antibiotics, but antihistamines and anti-inflammatory medications may help relieve the symptoms [5]. Warm or cool compresses may help reduce itching and swelling.

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## Drug Therapies

Viral conjunctivitis: Generally, the doctor will let the virus run its course. The doctor may prescribe antiviral eyedrops, such as acyclovir (Zovirax) or trifluridine (Viroptic). Treatment is supportive and may include ocular decongestants, and artificial tears. Cold compresses applied 3 times daily for 1 - 3 weeks may relieve discomfort [6].

## Allergic conjunctivitis

The doctor may recommend allergy shots, administered over several months, to reduce sensitivity to the allergen. Antihistamine eyedrops, such as over-the-counter antazoline phosphate (Vasocon-A) or prescription olopatadine ophthalmic (Patanol), may reduce swelling or itching [7]. An oral antihistamine can help relieve itching. A cool compress may help relieve symptoms, too.

Bacterial conjunctivitis: is treated with antibiotic eyedrops, such as sodium sulfacetamide (Cetamide, Bleph-10), or azithromycin, or ointment such as erythromycin (E-Mycin), bacitracin, or neomycin.

Worldwide, only 10% to 30% of healthcare is provided by conventional, Western, biomedical practitioners. The remainder is delivered either through folk beliefs or alternative traditions [8]. Complementary and alternative medicine (CAM) has become more popular in the United States over the past few decades. With this increasing popularity of CAM, it is important that practitioners become familiar with this area of medical practice for all diagnoses.

## Defining CAM

According to the National Center for Complementary and Alternative Medicine (NCCAM), CAM is defined as "a group of diverse medical and healthcare systems, practices, and products that are not presently considered to be part of conventional medicine [9]. The list of modalities included in this definition continually changes as practices are integrated into Western conventional medicine. They also identify 5 concepts, or domains, of CAM:

- Manipulative and body-based systems (chiropractic, osteopathic, and massage);
- Mind-body medicine (meditation, prayer, art, music, and dance);
- Biological-based systems (herbs, vitamins, and "natural" products);
- Energy therapies (biofield, touch, Qigong, and bioelectromagnetic); and
- Alternative medical systems (homeopathy, naturopathy, traditional Chinese medicine (TCM), and Ayurveda).

At this year's American College of Allergy, Asthma and Immunology meeting, William S. Silvers, MD, helped to clarify 3 categories by explaining the differences between complementary, alternative, and integrative medicine categories.

Complementary medicine suggests treatments in conjunction with Western medicine. For example, aromatherapy can be used to lessen patients' discomfort after surgery, and eucalyptus can complement antihistamines for allergic rhinitis.

Alternative therapies suggest replacements for Western medicine, for example, when a special diet is used for cancer patients instead of chemotherapy, radiation, or surgery.

Integrative medicine combines conventional Western medical therapies and CAM, for which there is some high-quality substantiated evidence for safety and efficacy [10]. An example of this situation is the use of yoga breathing to reduce the need for medications in asthmatics. A very popular form of integrative medicine is seen in immune enhancement products, such as vitamins A, B6, C, zinc, echinacea, and eucalyptus oil.

## OVERVIEW

Complementary and alternative medicine (CAM) is commonly defined as a group of diverse medical and healthcare systems, practices, and products that are not generally considered part of the conventional allopathic medical practices. Complementary therapies are used together with conventional allopathic medicine, while alternative therapies are used in place of conventional medicine. More general reviews of the principles of various CAM therapies are also found separately [11].

More than 20 percent of the United States population appears to suffer from an atopic disorder, such as asthma, allergic rhinitis, and atopic dermatitis, and over 42 percent of people (both adults and children) have used CAM for their atopic disorder [12,13]. The popularity of CAM therapies for allergic disease is even greater in some European countries [14]. Thus, it is important to ask patients about the use of CAM therapies in a nonjudgmental manner.

The use of CAM is growing in Western countries because of the reputed effectiveness, low cost, and favorable safety profiles of some therapies. Patients are often interested in alternative therapy either because conventional therapies are unsatisfactory or because of concerns about side effects of synthetic drugs [15-17]. The chronic nature of allergic diseases and the paucity of preventive or curative treatments also stimulate interest in CAM therapies [16].

As reflected in a study in 2009 that examined the safety reporting of CAM in randomized controlled trials, reporting of adverse effects was largely inadequate [18]. Improvement in safety reporting would facilitate integration into routine patient care. However, until this materializes, healthcare providers can familiarize themselves as much as possible with the available scientific literature on CAM. Evidence-based information of CAM therapies is available through several internet sites.

Given the high prevalence of allergic diseases and associated costs of the CAM treatments, high quality data about these therapies are needed so that practice guidelines can be established. In the United States, the National Center for Complementary and Alternative Medicine (NCCAM) has been tasked with evaluating mechanisms, efficacy, and safety of botanical medicines through basic science studies, clinical research, and the establishment of dedicated botanical research centers [19].

The design of randomized placebo-controlled studies in CAM is complicated by difficulties in blinding, creating an appropriate placebo (particularly for acupuncture), and designing a control treatment when the mechanisms of actions of the modality in question are poorly delineated (such as homeopathy). Additionally, the difference in philosophy of CAM interventions from conventional health care allows for significant variation in the way CAM modalities are practiced (i.e, therapies are often individualized for a particular patient and his/her specific disease state). Finally, the efficacy of CAM therapies may be heavily influenced by the patient's perception of his/her interaction with the provider, which is often more personal than the interaction between patients and allopathic healthcare providers. Thus, results may vary significantly among CAM providers and studies of CAM must also account for the influence of the patient-provider relationship.

### Using CAM

Data have shown that the most common diagnoses for which Western medical practitioners incorporate complementary or alternative modalities are anxiety, depression, and headaches [20]. Leonard Bielory, MD, presented the argument that it is imperative and the responsibility as healthcare providers to be open to any potential treatment options. However, it is also vital that both science and clinical experience be incorporated in the decision-making process. Although any condition's treatment can incorporate CAM modalities, it is most often used when a chronic and untreatable disease exists. Western or conventional medicine treatments traditionally address the body and the mind. CAM often incorporates personal belief systems and spiritual practices as well. We need to address the spiritual aspects by both teaching and listening to our patients. Practitioners should consider balancing the use of CAM with risks and benefits in mind. This consideration is especially important in the field of allergy and immunology. The most commonly reported CAM adverse events are also allergic in nature, including urticaria, contact dermatitis, and anaphylaxis [21].

### TRADITIONAL CHINESE MEDICINE

Traditional Chinese medicine (TCM) includes herbal therapy, acupuncture, massage, and dietary therapy. These practices originated in China and have been used in

East Asia for centuries as a part of mainstream medical care.

A study compared a traditional Chinese therapy containing eight herbs (RCM-102) versus placebo in 104 patients with ocular allergies and demonstrated no significant differences in symptom scores, quality of life scores, or rescue medication (RM) use [22].

In a meta-analysis comparing TCM versus placebo, seven randomized controlled studies from 1999 to 2011 with 533 patients using the Jadad format (not as rigorous as the Cochrane format) suggested a trend to improvement, but the compounds tested were not the same nor was there any change in serum immunoglobulin E (IgE) [23].

### ACUPUNCTURE AND ACUPRESSURE

Acupuncture is a component of traditional Chinese medicine (TCM) that was originally thought to work on the principle of redistribution of Qi, the life energy. In TCM, disease is believed to originate from an imbalance of Qi or poor flow of Qi.

Studies of acupuncture for the treatment of ocular allergies have shown mixed results, with the most rigorous studies showing very modest clinical benefit [24-27].

■ A systematic review identified 116 potentially relevant articles, of which 12 met criteria for inclusion by studying needle acupuncture, examining clinically relevant outcomes, and including a control, sham, or comparator treatment group [25]. The results were different for seasonal and perennial ocular allergies. There were no effects on seasonal symptoms, although some benefit was apparent for perennial symptoms. The magnitude of effect could not be estimated, although drug therapy could not be reduced as a result of acupuncture in either type of allergy.

■ A subsequent randomized controlled trial demonstrated statistically significant but clinically modest improvement in the primary endpoint of total ocular symptom score after the fourth week of treatment. Improvement was not sustained one week after completion of the four-week course, but was surprisingly present three weeks later [26].

In summary, the best trials of acupuncture for ocular allergies support limited benefit. Despite this, acupuncture may be a reasonable option for interested patients with relatively mild disease who wish to minimize medication use and find the cost of therapy acceptable.

Acupressure is similar to acupuncture but does not involve needles. Stainless steel pellets in adhesive discs are applied to specified points (acupoints) on the ear, and the pellets are pressed firmly into the skin. There was a small but statistically significant improvement in vision and quality of life in the acupressure group after eight weeks, with additional improvements in most measures of nasal symptoms at the end of the follow-up period compared with the sham group.

## AYURVEDA

Ayurvedic medicine is a medical tradition originating from India and derived from the teachings of ancient Hindu healers, which first appeared in text between 1500 and 1000 BC. Like TCM, Ayurvedic therapeutic interventions include yoga, meditation, breathing exercises, and herbal preparations. In its truest form, Ayurveda exists for the "promotion of health" rather than the treatment of specific disease states that have already begun to affect the body.

Ayurvedic herbal therapies have been evaluated in the treatment of ocular allergies. Aller-7 is a mixture of seven Indian herbs (*Albizia lebbek*, *Terminalia chebula*, *Terminalia bellerica*, *Phyllanthus emblica*, *Piper nigrum*, *Piper longum*, and *Zingiber officinale*) [27, 28]. Adverse effects were almost twice that of placebo and were largely mild gastrointestinal issues (eg, gastritis, discomfort, and dryness of mouth). Aller-7 is commercially available.

## HERBAL THERAPIES (SYSTEMIC):

A variety of herbal preparations may be used by patients with conjunctivitis, although scientific evaluation of herbal products has been limited and only those that have been evaluated in published clinical trials are reviewed here. A 2007 systematic review identified 16 randomized controlled trials that met eligibility criteria [29]. The agents discussed in this section are listed by their English names and their Latin or pharmacopoeial names.

Most herbal preparations contain several components, each with potentially varying physiologic and pharmacologic properties. However, herbal therapies that differ by name may contain identical components and thus share similar clinical effects and adverse effects. This is important when trying to analyze studies that attribute a clinical or physiologic property to a specific herbal preparation.

In many countries, herbal medicines are minimally regulated and uncommonly monitored for adverse events by national surveillance systems. However, the increasing popularity of herbal medicines has led to concerns over their safety, quality, and efficacy on the part of health authorities and the general public. In response to these concerns, the World Health Organization has published formal monographs on selected medicinal plants to establish quality standards of herbal products and outline the parameters for their safe and effective use [30]. Safety issues surrounding the use of herbal medications are reviewed elsewhere.

■ **Choice of brand** — Patients who use herbs often ask their providers what brand should be used. Lack of regulatory reform in the herbal industry makes it difficult for the clinician to provide an informed response. One option is to recommend brands that have been tested by independent sources, such as Consumer Labs, and found to meet minimum quality criteria [31]. For ethical reasons,

supplements sold through practitioners' offices or multilevel marketing plans should be avoided.

■ **Children and pregnant or lactating women** —

Very few studies of herbal therapies have been conducted on infants and children or in pregnant and lactating women [32]. Issues of particular concern include proper dosing in young children and greater susceptibility of fetuses and children to potential contaminants. We therefore discourage the use of herbal therapies in these patient groups.

## Specific herbal agents

■ **Butterbur (*Petasites hybridus*)** — Extracts from the root of butterbur (*Petasites hybridus*) contain petasins, compounds that are believed to possess medicinal properties possibly by altering the leukotriene pathway [33]. A systematic review of small, but randomized trials comparing herbal therapies with either placebo or active drug found evidence of efficacy based upon six double-blind randomized-controlled trials [34]. Butterbur preparations are available under a variety of brand names.

Multiple portions of the butterbur plant can contain pyrrolizidine alkaloids, compounds that have hepatotoxic and potentially mutagenic and carcinogenic effects in humans [35, 36]. At least 40 reports have appeared worldwide concerning hepatotoxicity with use of butterbur [37]. Most cases of pyrrolizidine alkaloid toxicity result in moderate to severe liver damage. Early signs and symptoms include nausea and acute upper abdominal pain, while more advanced toxicity may present with abdominal distension, jaundice, and the development of ascites. In some cases, if the ingestion of the source is not stopped, the toxicity can lead to hepatic fibrosis and potentially fatal cirrhosis. Manufacturing processes can reduce the content of alkaloids and consumers should choose products that are labeled as low in pyrrolizidine alkaloids. However, they should also be aware of this potential hazard and be advised about early symptoms.

■ **Tinofend (*Tinospora cordifolia*)** — Tinofend is an Indian herbal medication containing extract from the stem of *Tinospora cordifolia*. In a double-blind randomized trial of 75 patients with allergic conjunctivitis, those receiving *T. cordifolia* (at a dose of 300 mg three times daily for eight weeks) reported statistically significant improvement in ocular vision compared with those receiving placebo [38]. The drug was well tolerated, although it caused an increase in total blood leukocyte count in 70 percent of patients in the active treatment group, compared with 11 percent of those receiving placebo; a statistically significant difference. This was attributed to a possible "immunostimulatory" effect by the authors. There have been limited reports of hepatic toxicity, although several *in vitro* analyses performed by a manufacturer were reassuring [39, 40].

■ **Cinnamon bark, Spanish needle, and acerola** — A combination of cinnamon bark extract, dehydrated Spanish

Needle (*Bidens pilosa*) leaf and stem, and acerola fruit concentrate (at a dose of 450 mg three times daily) was compared with loratadine (10 mg once daily) and placebo in a randomized double-blind crossover study of 20 subjects with sensitization to timothy grass pollen [41]. Subjects took each study medication for two days and then underwent a nasal allergen challenge procedure with timothy pollen, after which ocular symptoms were assessed and nasal lavage fluid was examined for allergic mediators. Only loratadine significantly reduced symptoms acutely during the challenge, although both the botanical product and loratadine significantly reduced ocular symptoms two to eight hours after the challenge, compared with placebo. The magnitude of effect with both treatments was clinically significant. The botanical product appears to inhibit the production of prostaglandin D<sub>2</sub> following challenge, which may suggest a steroid-like impact that affects the late-phase response of allergic inflammation. This product is commercially available [42].

■ **Benifuuki green tea** — Benifuuki green tea is a specific cultivar that is rich in **O**-methylated epigallocatechin-3-**O**-(3-**O**-methyl) gallate or **O**-methylated EGCG, a compound that has anti-allergy properties [43-46]. In a randomized trial of 51 adults with Japanese cedar pollinosis, one-half of the group was assigned to drink 700 mL of Benifuuki tea daily, while the others drank a tea that does not contain **O**-methylated EGCG [44,45]. In the group drinking Benifuuki tea, the symptoms of pollinosis were significantly reduced, quality of life was improved, and the seasonal increase in peripheral blood eosinophils seen in the control group was suppressed. Although the effects were not sufficiently large to suggest that the tea could replace conventional therapies, the authors suggested that Benifuuki tea could be a useful adjunctive treatment.

#### **CAM THERAPIES WITH MINIMAL EVIDENCE OF EFFICACY**

A variety of other herbal preparations, homeopathic products, and miscellaneous therapies have been suggested for the treatment of conjunctivitis. However, studies have either been of low quality or failed to show benefit.

##### **Homeopathy**

Homeopathy works on the principle of treatment with "similar." The remedies prescribed by homeopathic practitioners are essentially extremely dilute solutions of drugs known to cause the very symptoms that are to be treated. However, some products labeled as "homeopathic" can in fact contain substantial amounts of active ingredients and therefore could cause side effects and drug interactions.

According to the literature reviewed, 3 to 4 percent of CAM users use homeopathy and about 75 percent of patients seen by homeopathic practitioners report

symptomatic improvement. However, meta-analyses and systematic reviews have repeatedly concluded that homeopathy is not different from placebo in the treatment of any medical disorder, including allergic conjunctivitis [47].

**Other herbal preparations** — Other herbal preparations, for which evidence of efficacy for conjunctivitis is limited or lacking, include quercetin, stinging nettle, *Perilla frutescens*, ginkgo, milk thistle, and grape seed extract.

■ **Quercetin** — Bioflavonoids, such as quercetin, have been of interest in the treatment of allergic diseases based upon studies showing that these compounds could act as mast cell-stabilizing agents, inhibiting the release of histamine, interleukin-8 (IL-8), and tumor necrosis factor (TNF), and inhibiting the formation of prostaglandin D<sub>2</sub> in a dose-dependent fashion [48]. Quercetin is one of the components of an *Artemisia abrotanum* intranasal spray that was administered to 12 patients with conjunctivitis in a small uncontrolled study [49]. All subjects reported improvement in symptoms within five minutes of application, which lasted several hours. Ocular symptoms also improved with intranasal application. Quercetin is also found in Spanish needle.

■ **Stinging nettle (*Urtica dioica*)** — Extracts from the root and leaves of stinging nettle (*Radix urticae*) have been used to treat allergic conjunctivitis. A very small clinical effect was noted in one randomized trial [50]. The Latin genus name comes from the term "burn" due to the urticate (stinging) nature of its hairs secondary to the other pruritogenic compounds.

Stinging nettle has no known contraindications or drug interactions, although contact with fresh leaves causes allergic type reactions, such as urticaria and burning and itching upon application to mucosal surfaces, and ingestion is known to cause mild gastrointestinal disturbances and rare diarrhea. It is also used homeopathically.

■ ***Perilla frutescens*** — *Perilla frutescens* is an Asian herb. Two doses of a preparation enriched for rosmarinic acid was compared with placebo in a randomized controlled trial of 29 patients with seasonal allergic conjunctivitis [51]. A significant difference was seen in quality of life between the higher dose *P. frutescens* and placebo after three weeks of treatment, although specific ocular symptoms were not statistically different.

■ **Eucalyptus** — The steam distillation of eucalyptus leaves generates an oil rich in 1,8-cineole [52]. Eucalyptus preparations have been studied as an eye drop during acute infectious eyes when applied in conjunction with camphor, menthol, or steam with improvements in symptoms [53].

■ **Ginkgo biloba** — There are limited studies in support of the treatment of conjunctivitis [54,55] using solutions of ginkgo biloba extract, although one study did reflect a positive trend for the treatment of allergic conjunctivitis when applying the extract topically [55].

■ **Milk thistle** — *Silybum marianum*, or silymarin, is a compound extracted from milk thistle. It has antioxidant

and antifibrotic properties and has been most extensively studied in the treatment of liver disease [56]. One study showed that subjects with ocular allergy, who also took silymarin, had reduced symptoms compared with those taking conventional medicine alone [57]. However, this herbal agent has been known to inhibit cytochrome P450 2C8 and 2C9, and alterations in drug levels are of a major concern as it has been shown to decrease the trough concentrations of *indinavir* in humans [58,59]. It is not recommended for the treatment of ocular allergies at this time.

■ **Grape seed extract** – Grape seed extract has antioxidant properties and is marketed for the treatment of a variety of illnesses. However, a placebo-controlled study did not demonstrate any positive effect of grape seed extract on the treatment of ocular allergy [60].

**Laser therapies** — Laser therapies deliver light energy to specific targets, including endobronchial tissues, tympanic membranes, blood, and skin. Laser therapy is described with various terms in the literature, including laser ablation, photodynamic therapy (PDT) of ocular tissue and laserpuncture (laser acupuncture) [61].

There are no controlled trials of laser therapies for the treatment of ocular allergies. An uncontrolled series described 42 patients with conjunctivitis (allergic and nonallergic) who were treated with a single treatment with a diode laser under local anesthesia [62]. Twenty-five reported subjective improvement in nasal symptomatology, especially obstruction, and positive effects on quality of life, up to six years later. Nonallergic conjunctivitis has also been treated with laser therapy [63].

**Other types of treatments** — Several other CAM therapies have been studied in inflammatory diseases, but not specifically in conjunctivitis. These include apitherapy (ie, bee sting therapy), behavior modification techniques etc.

### The Role of the Practitioner

In Dr. Silvers' practice, he reported that more than 60% of patients voiced a desire to use a combination of traditional and CAM therapies. In a study published in 2006, Dr. Silvers quoted that patients used the following: 30% used oral vitamins and minerals; 21% used herbal therapies; 18% adjusted coffee and tea intake; 13% used caffeine-containing preparations; 14% used dietary supplements (ie, garlic, chili pepper); and 8% used homeopathic methods [64].

Mind-body interventions can enhance the body's capacity to affect dysfunction and painful symptoms through meditation, support groups, cognitive therapy, art, music, and dance.

A complete medical history incorporating complete information, including CAM, should be taken on every patient. Dr. Silvers has made it a routine to request that his patients bring in all pills, drops, oils, creams,

syrups, etc, so that he can identify and accurately understand all the actions and interactions.

### Safety Concerns

Dr. Silvers shared concerns that, currently, have no legal requirement for proof of efficacy or safety. Rather, the US Food and Drug Administration (FDA) must prove that a product is unsafe. A well-known example of this is the use of echinacea for upper respiratory tract infections. The public generally accepts echinacea, and this herb is thought to be therapeutic. However, in patients with allergies to ragweed, chrysanthemums, marigolds, and daisies, there may be an increase in ocular allergies when these patients use Echinacea [65].

A complementary therapy that has proven to be safe and effective, and which now has been integrated by some practitioners into conventional healthcare, is the use of probiotics. Probiotics are defined as live microorganisms, including *Lactobacillus* species, *Bifidobacterium* species, and yeasts, that may beneficially affect the host upon ingestion by improving the balance of the intestinal microflora. This seemingly benign product is generally considered safe with an excellent overall food safety record [66]. However, a case was cited in which a neonate with an existing immune deficiency condition was given probiotics, resulting in sepsis. Therefore, Dr. Silvers concluded that more research is needed. He reminded the audience that, despite assumed safety or universal acceptance of a product, it is imperative that physicians consider the entire history, physical examination, and all other treatments that the patient is currently exposed to when making medical recommendations.

Grape seed extract is another commonly used complementary therapy, used for its antioxidant qualities and for numerous other indications. Although it appears to be benign, scientific evidence on this product is still lacking.

Dr. Silvers shared an illustrative case with the audience in which a mother brought her 3-year-old child to him for allergy evaluation. She also brought with her all of the other complementary and alternative treatments she had been using. As he reviewed the ingredients of the products brought in, he found that some contained ingredients that crossed over with the child's allergens. In this way, the mother was using products that were exacerbating the child's condition. He was then able to educate her to provide more effective care.

### INFORMATION FOR PATIENTS

Researchers offer two types of patient education materials, "The Basics" and "Beyond the Basics." The Basics patient education pieces are written in plain language, at the 5<sup>th</sup> to 6<sup>th</sup> grade reading level, and they answer the four or five key questions a patient might have about a given condition. Beyond the Basics patient

education pieces are longer, more sophisticated, and more detailed [67]. These articles are written at the 10<sup>th</sup> to 12<sup>th</sup> grade reading level and are best for patients who want in-depth information and are comfortable with some medical jargon.

### Following Up

Viral and bacterial conjunctivitis are both very contagious. Family members should use separate towels. Wash the hands often. Keep children home from school and day care.

Be sure to follow doctor's advice about using any medications, especially if patient has been given antibiotics or corticosteroids. If he/she wears contact lenses, keep him/her clean to avoid further irritation and future infections. Do not wear them until the eyes have healed.

People with allergic conjunctivitis sometimes develop a severe form with a stringy discharge, swollen eyelids, scaly skin, and significant discomfort. This needs aggressive treatment to prevent scarring of the cornea [68].

### SUMMARY AND RECOMMENDATIONS

●It is prudent to ask patients about the use of complementary and alternative medicine (CAM) in a nonjudgmental manner because a significant percentage of patients have tried or are actively using these therapies to treat allergic disorders. A paucity of well-designed studies makes it difficult for clinicians to recommend CAM therapies with confidence. However, patients who do wish to pursue CAM should consider the financial costs (which may be substantial) and be aware that long-term safety data on most of these therapies are lacking.

●Traditional Chinese medicine (TCM) includes herbal therapy, acupuncture, massage, and dietary therapy.

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●Studies of acupuncture for the treatment of ocular allergies have shown modest benefit, although it is difficult to estimate the size of the effect in most positive studies [69].

●There are several herbal therapies that have demonstrated efficacy, including Ayurvedic mixes, butterbur, and Tinofend. Patients interested in these therapies should become familiar with the reported side effects and understand that these products are not systematically monitored for safety by drug regulatory bodies. We suggest that pregnant and nursing patients be advised to avoid herbal therapies.

●Patients who seek advice about what brand of herbal medicine to use can be referred to independent sources such as Consumer Labs, which tests various brands of herbal therapies for content and quality [70].

### CONCLUSION

CAM is growing in popularity, and increasingly patients are mixing their use with that of TCM. Practitioners should become better-informed and aware of the possible interactions and side effects of these therapies. Some resources that are available to practitioners include the following databases:

- NCCAM: <http://nccam.nih.gov/>
- Natural Comprehensive Database: [www.naturaldatabase.com](http://www.naturaldatabase.com)
- National Institutes of Health (NIH) Office Dietary Supplements: [http://ods.od.nih.gov/Health\\_Information/IBIDS.aspx](http://ods.od.nih.gov/Health_Information/IBIDS.aspx)
- University of Texas at El Paso Sorted Herbal Names: <http://www.herbalsafety.utep.edu/factsheet.asp>
- FDA Patient Safety News: [http://www.accessdata.fda.gov/sc\\_rpts/cdrh/cfd\\_ocs/psn/index.cfm](http://www.accessdata.fda.gov/sc_rpts/cdrh/cfd_ocs/psn/index.cfm)

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