

International outlook

The powers of Asian medicine against dry eye syndrome

by Matt Young and Gloria D. Gamat EyeWorld Contributing Writers



It is easy to dismiss traditional medicine as unscientific, but it is important to keep an open mind to the potentially useful things we can learn from folk remedies. Presented here is an objective look at how traditional Chinese medicine can be used to treat dry eye syndrome. As the world becomes a smaller, we will increasingly be exposed to alternative thinking about how to approach common problems. Korean red ginseng might just prove to be the next big thing.

John A. Vukich, MD,
international editor



In a randomized clinical trial conducted at Singapore Eye Research Institute, qualified patients are being grouped into 3 categories for dry eye treatment: eye drop, eye drop and acupuncture, eye drop and herbal mixture.

New research probes whether East can meet West to advance treatment options

Experts from Asia are exploring the potential of combining alternative Asian medicine to complement western medicine in the treatment of dry eye syndrome.

Ophthalmologists in Singapore are working with Traditional Chinese Medicine (TCM) experts to evaluate the use of TCM protocols in dry eye patients.

Further, Korean researchers have sufficient reason to believe that Korean red ginseng (KRG) supplementation may provide an additional treatment option for dry eye and for patients with glaucoma using anti-glaucoma eye drops.

Evaluation of TCM against dry eye

In Singapore, herbal medicine and acupuncture are the most popular

TCM modalities in treating dry eye syndrome.

In a randomized clinical trial conducted by clinician scientists at the Singapore Eye Research Institute (SERI) in collaboration with TCM experts at the Singapore Chung Hwa Medical Institution (SCHMI), qualified patients are being grouped into 3 treatment categories (eye drop, eye drop and acupuncture, eye drop and herbal mixture).

Patients are being treated for a period not exceeding 1 month, and western medical science protocols are used to evaluate treatment results.

"A standard question is administered for severity of dry eye symptoms," said **Louis Tong, MD, PhD**, principal clinician scientist and head of the Ocular Surface Research Group at SERI. "Tear function, stability and evaporation rates will be measured, while tear osmolarity and cytokine levels will also be evaluated."

From the perspective of TCM, dry eye patients may fall under 8

different types of pattern differentiations, according to **Pat Lim, MD, PhD**, TCM ophthalmologist at ICU Eye Care and SCHMI, Singapore. However, out of the 8 types, only 1 was chosen as the TCM inclusion criteria—"lung-kidney yin deficiency"—the most common TCM criteria in Singapore.

"The patient selection criteria are based on established TCM study protocols," Dr. Lim said. "Mainly aged between 40 and 85, with the chief complaint of dry eye, [these patients] do not have major system diseases, autoimmune diseases or other eye diseases, and at the same time satisfy the TCM criteria as 'lung-kidney yin deficiency' patients."

"In mainstream medicine, it has been shown that dry eye has an immune basis and various autoimmune diseases such as Sjogren's syndrome and other rheumatic conditions are also associated with dry eye," Dr. Tong said.

Furthermore, Dr. Lim explained, TCM sees the eye as a whole body structure and not just an eye alone.

“The whole eye has been divided into 5 wheels [departments], which represent the wood, fire, soil, metal, and water elements on earth,” she said. “The conjunctiva/sclera belongs to metal, which is represented by the lung meridian; the cornea/iris belongs to wood, which is represented by the liver meridian; the palpebral conjunctiva and bulbar conjunctiva belong to water, which is represented by the kidney meridian.”

Dr. Lim emphasized that in the adult population (age 40 and above), dry eye patients have been categorized as either having fluid deficiency, liver-kidney yin deficiency, or lung-kidney yin deficiency.

“Due to the humidity in Singapore, we seem to have mainly ‘lung-kidney yin deficiency’ patients, so we focused on this pattern differentiation to start the study,” she said.

According to Dr. Tong, TCM practitioners will administer the criteria based on TCM protocols as explained previously by Dr. Lim to determine the type of patients suitable for the TCM therapy. Selected participants are then randomly assigned to the 3 treatment groups. “The study is [still] ongoing, results will be analyzed only when the last patient has completed follow up,” Dr. Tong said.

Meanwhile, Drs. Tong and Lim are confident about the benefits of TCM in the treatment of dry eye without adverse side effects.

“From 2012 to 2014, we conducted a clinical trial on 90 dry eye patients using the same TCM herbal medicine and acupuncture methods, and none reported any adverse effects during the study,” Dr. Lim said.

The eye drop used in the study is a common topical eye drop that does not contain any anti-inflammatory or steroidal properties.

“Thus, we do not foresee any adverse effects in this treatment modality,” Dr. Tong said.

Dr. Lim added: “However, we do foresee that some dry eye study patients may encounter sensitive reactions toward consumption of the herbal medicine [i.e., diarrhea, constipation, abdominal pain or

bruises around the eye area after acupuncture].”

The benefits of Korean red ginseng supplements in dry eye patients

In the last 200 years, ginseng (the root of *Panax ginseng* C.A. Meyer) has been known to be a valuable folk medicine in East Asian countries. Red ginseng is produced from steaming raw ginseng and is considered to be medicinally beneficial.

“Red ginseng is reported to be pharmacologically more active than raw ginseng in terms of chemical constituents (Rh4 and Rf2), which are produced in the steaming process,” explained **Chan Yun Kim, MD, PhD**, professor, Department of Ophthalmology, Severance Hospital, Yonsei University, College of Medicine, Seoul, Korea.

Korean red ginseng (KRG), according to Dr. Kim, has been widely used as a prophylactic and restorative agent for enhancement of mental and physical capacities. It has also been used in cases of weakness, exhaustion, tiredness, loss of concentration, and during convalescence.

Generally safe and having few side effects, KRG could be taken in various dosage forms (capsules and tablets of powdered drugs, extracts, tonic drinks, wine, and lozenges) based on personal preference.

In an earlier study conducted by Dr. Kim and his colleagues, participants reported relief from discomfort caused by anti-glaucoma eye drops after KRG intake. Furthermore, as reported by Dr. Kim and colleagues in the *Journal of Ginseng Research* in 2010, the signs and symptoms of dry eyes were improved in some of these patients.

Results of this study have prompted Dr. Kim’s research group to further examine the effect of KRG supplementation on dry eye syndrome in patients with glaucoma.

In a new randomized, double-blind, placebo-controlled study, KRG was used as a complimentary option to artificial tear eye drops rather than an alternative one. The results showed that all patients who displayed dry eye symptoms and signs at baseline significantly improved

based on tear film stability and total Ocular Surface Disease Index score, as compared to placebo after 8 weeks of KRG supplementation. Dr. Kim and colleagues reported these results in a paper published in the *Journal of Ginseng Research* in January 2015, providing evidence that KRG supplementation may be an additional treatment option for dry eye and in patients with glaucoma using anti-glaucoma eye drops.

Numerous studies have reported the anti-inflammatory, anti-stress and antioxidant properties of KRG. Also, various studies have reported the favorable effects of KRG supplementation in numerous diseases, including cardiovascular disease, cerebrovascular disease, hyperlipidemic disease, sexual dysfunction, and Alzheimer’s disease. The exact explanation for KRG’s effect in certain cases—for example, on Alzheimer’s disease—is not yet clear, noted Dr. Kim.

Recently, inflammatory reactions have been thought to play an increasingly important role in the pathogenesis of dry eye syndrome, according to Dr. Kim.

“KRG contains various ginsenosides that are believed to be responsible for the systemic anti-inflammatory activities,” he said. “Many studies have reported the anti-inflammatory effects of ginseng extracts and ginsenosides on cellular responses triggered by various inducers, including endotoxin, tumor necrosis factor- α , and interferon- γ .”

As early as 1999, a study published in *Biochemical Pharmacology* reported that ginseng extracts and ginsenosides (including Rb1, Rb2, Rc, Rd, Re, Rf, Rg1, and Rg2) have anti-inflammatory properties in different forms of inflammation.

Two studies published in 2013, in the *European Journal of Pharmacology* and *International Immunopharmacology*, reported that ginsenosides decreased production of cytokines and inflammation mediators.

Commenting on the advantages of KRG supplementation compared to other treatment for dry eye syndrome, Dr. Kim said: “KRG has been already used widely for enhancement of several mental and physical capacities with considerable safety.

Thus, using KRG in combination with conventional artificial tears, an additional effect is also expected because KRG affects the body systemically through an anti-inflammatory mechanism.”

Although considered safe in most people for short-term use, there are some concerns about how KRG can affect the body over the long term, Dr. Kim said.

“Side effects do not occur in everyone who take ginseng, but the most common side effect is trouble sleeping,” he said.

The less common side effects include menstrual issues, increased heart rate, elevated blood pressure, headache, diarrhea, dizziness, and rashes.

“KRG is generally well-tolerated, but caution should be taken when consuming other herbal medicine,” Dr. Kim said.

Identifying all possible contraindications with KRG intake, Dr. Kim said: “There is a moderate risk that KRG could interfere with blood pressure medicine, blood thinners, monoamine oxidase inhibitors (MAOI), antidepressants, immune system suppressants, and insulin for diabetics. It should also be avoided combining ginseng with smoking and coffee, as the supplement can enhance the effects of nicotine and caffeine.”

The use of KRG should be avoided if there are known hormonal problems or hormonally sensitive conditions such as endometriosis, breast or uterine cancer. “In addition, do not consume KRG during pregnancy or while breastfeeding, since there is a possibility of adverse effects on the fetus and newborns,” Dr. Kim said. **EW**

Editors’ note: Drs. Lim, Tong, and Kim have no financial interests related to their comments.

Contact information

Lim: drpatlim@singnet.com.sg

Tong: louis.tong.h.t@snc.com.sg

Kim: kcyeye@yuhs.ac