



Steven E Wilson

Best treatment for dry eye after LASIK is prevention

Devon Schuyler
in Atlanta

PREVENTION is definitely the best approach for dry eye after LASIK, stressed Steven E Wilson MD of the Cleveland Clinic in Ohio.

"It's important to be proactive to avoid unhappy LASIK patients with dry eye," he told a special refractive surgery session at the annual meeting of the AAO.

He pointed out that people with dry eye tend to self-select themselves for LASIK because they're unhappy with contact lenses and are seeking an alternative. He observed that intolerance to contact lenses is one of the telltale signs of some type of anterior segment disease.

People with dry eye also may develop punctate epithelial erosions and other corneal surface abnormalities. Dr Wilson cautioned that these irregularities could alter wavefront analysis of the eye, leading to errors in treatment and high rates of enhancement after surgery. Another problem for people with dry eye before surgery is an increased risk of LASIK-induced neurotrophic epitheliopathy (LINE).

Optimisation before surgery

Dr Wilson said that ophthalmologists need to optimise patients with dry eye prior to surgery. Even those with mild symptoms or signs need pre-treatment because refractive surgery acts as an additional stressor.

The regimen Dr Wilson uses is 0.05 per cent of cyclosporine A twice a day, along with preservative-free artificial tears. He noted that it's important to advise patients about the possibility of a stinging sensation with cyclosporine A treatment, although many patients don't have this symptom since they tend to have milder dry eye in this age group.

Signs and symptoms of dry eye resolve in

the first month in about half of patients. In those cases, Dr Wilson proceeds with LASIK. Cyclosporine A should continue for six to eight months after surgery, with a two-day interruption the day of and the day after surgery.

Some patients take longer to respond to cyclosporine A. In phase 3 clinical trials using 0.05 per cent cyclosporine A for chronic dry eye, up to 40 per cent of responders began to see an improvement in symptoms and signs after three months or longer.

Dr Wilson said that he would proceed with treatment if he sees a marked improvement in dry eye, with resolution of corneal staining and Schirmer's wetting of greater than 5mm.

About 15 per cent to 20 per cent of patients fail to see an improvement in dry eye after six to eight months of treatment with cyclosporine A and artificial tears. At that point, the ophthalmologist may wish to recommend punctal plugs and dietary support. If this combination has no effect, the patient is not a good candidate for LASIK.

He cited increasing evidence that topical cyclosporine A treatment might halt progression of dry eye in some patients. In a 2007 study he published in *Ophthalmology*, he found that some patients with symptoms and signs of chronic dry eye treated with topical cyclosporine A for six or more months had complete resolution of symptoms and signs even after cyclosporine A was stopped.

Despite this finding, most patients have residual symptoms or signs even with treatment, and need to continue their treatment indefinitely. Some of these patients may become good candidates for LASIK, but Dr Wilson said he advises against the procedure for people with persistent corneal signs.

Dr Wilson cautioned surgeons to be on the alert for LINE in their LASIK patients

because damage to the corneal nerves can trigger the condition. LINE can lead to a sensation of dryness, grittiness or irritation. The most troubling symptom is fluctuating vision. It can occur as a result of dry eye, or in addition to it. People with pre-existing dry eye tend to have more-severe signs and symptoms.

"Some LASIK patients have underlying, subclinical dry eye, and they get tipped over the edge [to LINE] by interruption of the nerves" during surgery. LINE typically lasts for six to eight months after surgery, until the nerves are able to regenerate into the flap.

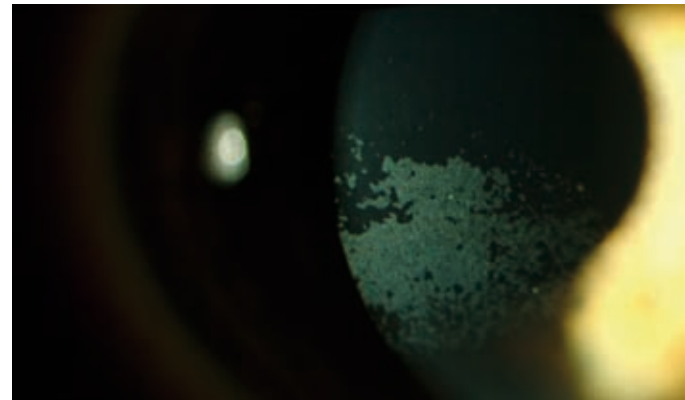
Fortunately, LINE is very responsive to cyclosporine, with more than 85 per cent of patients responding within one month of beginning treatment. The remaining patients usually improve on their own. Those who don't improve within six to eight months may require additional treatments, such as preservative-free artificial tears and ointments, punctal plugs and bandage contact lenses.

Speaking to *EuroTimes*, Dr Wilson said it was unfortunate that topical cyclosporine hasn't been approved in the EU, noting, "I don't think cyclosporine would be growing like it has been in the United States unless it worked."

In rare cases, patients experience eye pain long after surgery despite having nothing in terms of corneal staining that indicates they have a problem. He commented that

surgeons tend to "write off" these patients as "crazy". He hypothesised that these patients may in fact be suffering from a poorly understood condition called complex regional syndrome (CRPS; also known as reflex sympathetic dystrophy syndrome), in which unexplained pain attributable to damage to sympathetic or parasympathetic nerves continues long after an injury or incision has healed.

If LASIK chronic pain syndrome does exist, he said, it may respond to anticonvulsant drugs such as pregabalin (Lyrica), gabapentin (Neurontin), or topiramate (Topamax),



Slit lamp photo of a cornea with LINE at one week after LASIK

Courtesy of Steven E Wilson MD

all of which are used to treat CRPS. He advised ophthalmologists to get in touch with a pain management specialist to treat patients with suspected CRPS.

Jason Stahl MD of Durrie Vision in Overland Park, Kansas said that "proactive and aggressive treatment of dry eyes with 0.05 per cent cyclosporine A prior to and following LASIK or PRK improves patient outcomes and satisfaction by lessening postoperative dry eyes."

Dr Stahl pointed out that even patients without dry eyes might benefit from cyclosporine A following LASIK surgery. A recent study in normal eyes reported that eyes treated postoperatively with cyclosporine A had overall better UCVA and faster visual recovery following LASIK compared with controls. Another recent study in normal eyes reported significantly improved corneal sensitivity at three months after LASIK treated postoperatively with cyclosporine A compared with control eyes.

Jorge L Alió MD, of Alicante, Spain, told *EuroTimes* that cyclosporine A is "an important drug in the prevention and treatment of ocular surface syndrome after LASIK." He said that he prefers the term "ocular surface syndrome after LASIK" to LINE because it takes into account significant changes at the conjunctiva in addition to the condition of the corneal epithelium, such as goblet cell depletion (Rodriguez-Prats JL, Hamdi IM, Rodriguez AE, Galal A, Alio JL. Effect of suction ring application during LASIK on goblet cell density. (http://www.ncbi.nlm.nih.gov/pubmed/17598573?ordinalpos=5&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_DefaultReportPanel.Pubmed_RVDocSum) *J Refract Surg.* 2007(6):559-62).

The fact that other factors besides neurotrophic epitheliopathy are involved explains why cyclosporine A is only partially effective at relieving ocular surface syndrome after LASIK. He recommended combining cyclosporine A with other measures such as lubricating agents and, in severe cases, platelet-rich plasma.

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