



James M Goldman

Eric D Donnenfeld

The use of nepafenac after LASIK may increase rate of epithelial ingrowth

Devon Schuyler
in Las Vegas

THE use of nepafenac (Nevanac, Alcon) immediately after LASIK is effective at decreasing flap oedema and striae, but may increase the rates of diffuse lamellar keratitis and epithelial ingrowth, according to a recent study.

“After hearing anecdotal reports of nepafenac being a possible risk factor, we decided to pay attention to the order of drop administration”

James M Goldman MD and colleagues at Evanston Northwestern Healthcare in Evanston, Illinois, experienced a dramatic increase in the rate of epithelial ingrowth requiring surgical intervention at their centre after a switch from ketorolac (Acular, Allergan) to nepafenac in November 2005. The rate increased from less than one per cent before November to greater than 20 per cent in November and December. Both ketorolac and nepafenac were being used for pain control immediately after LASIK surgery.

Dr Goldman said that Marian Macsai MD, the division chief of ophthalmology at Evanston Northwestern Health Care, was the first to notice the complication and suspected a contributing role of the new topical NSAID.

“We wanted to explore whether our suspicions were true,” he said.

In response, the researchers undertook a retrospective examination of the effect of nepafenac on the visual outcomes of LASIK and the incidence rates of post-LASIK complications at the centre. They presented their results in a poster at the AAO annual meeting.

The researchers compared eyes from

three groups: 28 eyes that had received nepafenac, 29 that had received ketorolac, and 29 that had received no topical NSAIDs.

They found that the incidence of striae or flap oedema one week after surgery was significantly higher in the non-NSAID group than in the nepafenac group: 17 per cent vs. zero per cent. The incidence of striae or flap oedema appeared to be slightly higher in the ketorolac group (three per cent) than in the nepafenac group, but this difference was not statistically significant.

By contrast, the incidence of epithelial ingrowth requiring surgical intervention was significantly higher in the nepafenac group than in the non-NSAID group: 22 per cent vs. zero per cent. The incidence of epithelial ingrowth also was lower in the ketorolac group than in the nepafenac group, but this difference was not statistically significant. The incidence of diffuse lamellar keratitis also was significantly higher in the nepafenac group (22 per cent) than in either the ketorolac group (zero per cent) or the non-NSAID group (zero per cent).

The nepafenac group was further subdivided into 14 eyes that had received the drug as the first drop and 14 that had received the drug as the last drop on the operating table.

“After hearing anecdotal reports of nepafenac being a possible risk factor, we decided to pay attention to the order of drop administration,” Dr Goldman explained.

The researchers found that eyes that had received nepafenac as the last drop were significantly more likely than those who had received it as the first drop to experience diffuse lamellar keratitis (43 per cent vs. zero per cent) and epithelial ingrowth (also 43 per cent vs. zero per cent).

“Because the increase in epithelial ingrowth requiring surgical debridement was only observed in patients receiving nepafenac as the last postoperative drop, our suspicion was supported regarding the putative role of the viscous NSAID,”



Epithelial ingrowth

Courtesy of Eric D Donnenfeld MD

Dr Goldman told *EuroTimes*.

The researchers concluded that nepafenac, given as the final drop immediately after the procedure, may increase the risk of both diffuse lamellar keratitis and epithelial ingrowth requiring surgical intervention.

“We were surprised to find that only the patients who received the drop as the last medication on the operating table were predisposed to an increased rate of the complication,” said Dr Goldman.

Dr Goldman said that he and Dr Macsai believe that the viscous suspension of nepafenac may become trapped in the LASIK interface, creating microscopic misalignment. This misalignment could explain the increased rates of postoperative epithelial invasion. Since most of the affected patients also had diffuse lamellar keratitis, the accumulation of inflammatory cells within the flap interface also is likely playing a role.

They recommended that ophthalmologists who wish to use topical NSAIDs should avoid leaving a viscous substance on the operative field following

restoration of the LASIK flap.

“Our work agrees with previous work demonstrating that substances that become trapped in the LASIK interface – such as blood and ointment – can predispose to epithelial ingrowth requiring surgical debridement,” he added.

“Further corroboration of the finding that Nevanac increases the risk of epithelial ingrowth is needed, but if substantiated would suggest Acular LS (Allergan) as a superior NSAID in LASIK surgery,” said Eric D Donnenfeld MD, of Ophthalmic Consultants of Long Island, in an interview with *EuroTimes*. Dr Donnenfeld was one of the presenters at refractive surgery subspecialty day.

He recommended that ophthalmologists continue to use an NSAID in LASIK to reduce oedema and striae.

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