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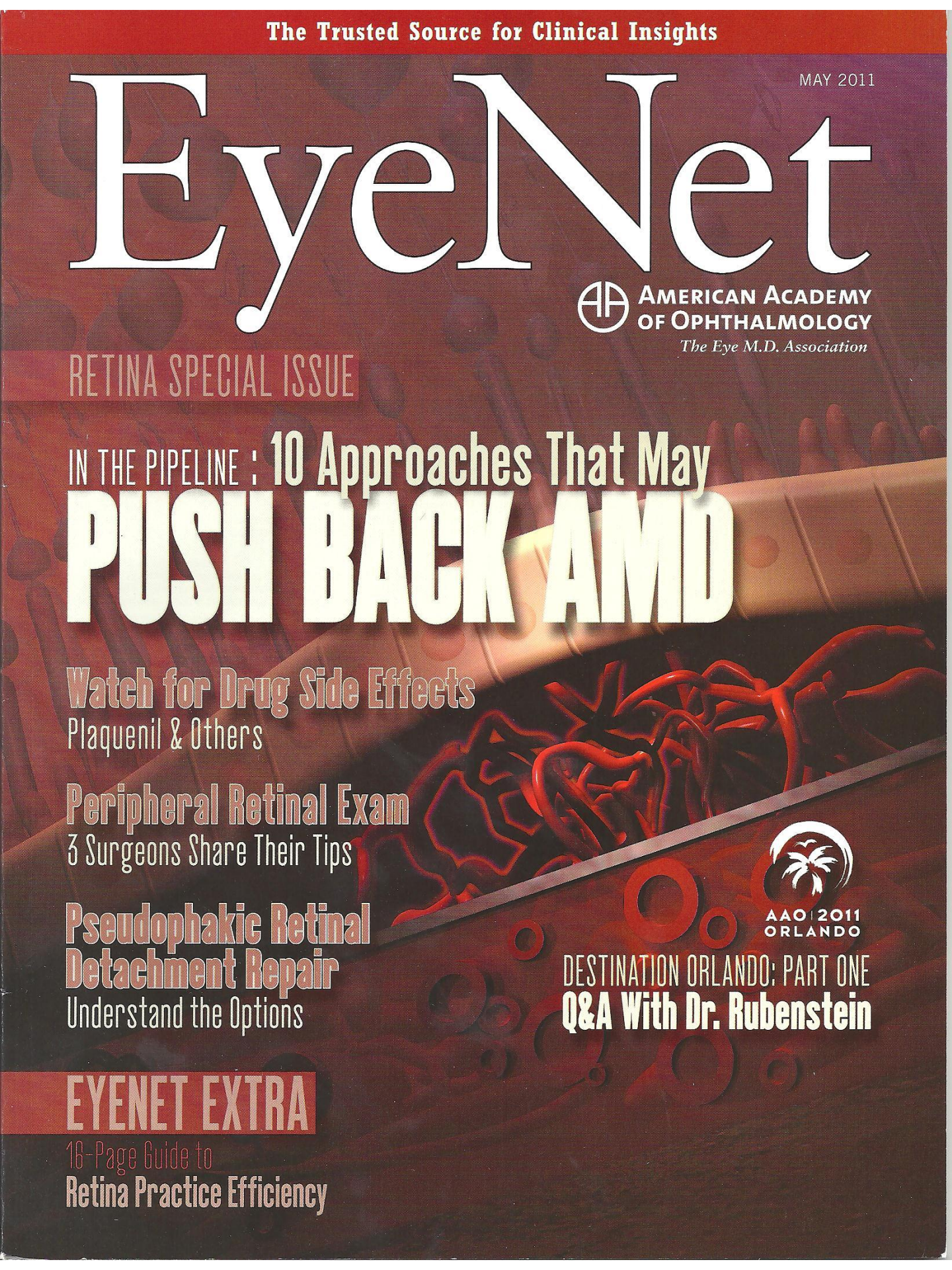
RETINA SPECIAL ISSUE

IN THE PIPELINE : 10 Approaches That May PUSH BACK AMD



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News in Review

A LOOK AT TODAY'S IDEAS AND TRENDS

Avastin Treats Stage 3+ ROP

Bevacizumab was FDA-approved for colon cancer, but the anti-VEGF drug may have found its true calling in treating stage 3+ retinopathy of prematurity. "This is a disease that bevacizumab is really made for," said Helen A. Mintz-Hittner, MD. She recently reported the findings of a multicenter, randomized trial in which the recurrence rate for eyes treated with laser, the conventional therapy, was far greater than in eyes treated with bevacizumab.[1]

The point of the treatment is to stop abnormal vessel growth, while giving normal retinal vessels a chance to finish growing in eyes that never fully developed in utero.

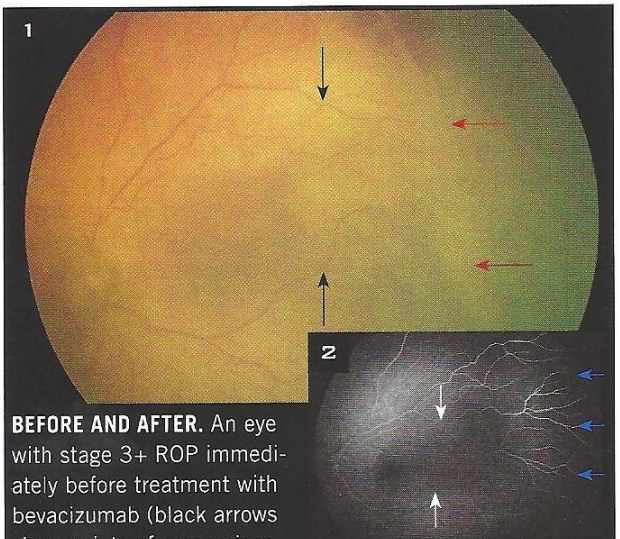
EyeNet *thanks K. David Epley, MD, for his help with this issue's News in Review.*

In the trial, BEAT-ROP (Bevacizumab Eliminates the Angiogenic Threat of Retinopathy of Prematurity), 150 infants with either zone I or posterior zone II ROP were randomly assigned to intravitreal bevacizumab or conventional laser therapy.

All the infants had stage 3+ ROP, the only stage at which bevacizumab should be used, said Dr. Mintz-Hittner, professor of ophthalmology and visual science at the University of Texas Health Science Center at Houston.

In stages 1 and 2, when the immature retina has few blood vessels and VEGF levels are relatively low, bevacizumab could stop normal retinal development and induce retinal dystrophy. At the other end of the spectrum, stages 4 and 5, when VEGF is also down and scarring is occurring, treatment could accelerate retinal detachment. "In between is when it really works," she said, referring to stage 3+.

In addition to staging, ROP is defined by severity, with zone I being the worst. For that subset, recurrence in eyes treated with laser was significantly higher than in bevacizumab-treated eyes. Specifically, ROP recurred in one or both eyes in 6 percent of the bevacizumab-treated



BEFORE AND AFTER. An eye with stage 3+ ROP immediately before treatment with bevacizumab (black arrows show points of comparison with post-treatment photo; red arrows show extent of vascularization) (1). Eleven and a half months after treatment (blue arrows on far right show extent of vascularization) (2). Recurrence, if it happens, takes place much later in eyes treated with bevacizumab than laser.

HELEN A. MINTZ-HITTNER, MD

patients, compared with 42 percent in the laser-treated patients. While the results were not significant for posterior zone II patients, the trend favored bevacizumab. The findings were so robust that an editorial in the *New England Journal of Medicine* recommended bevacizumab become the treatment of choice for zone I ROP.[2]

One caveat: Recurrence, if it happens, occurs further out with bevacizumab than with laser—at 16 weeks compared with 6.2 weeks. Therefore, doctors must carefully follow infants treated with bevacizumab to be sure vascularization is complete.

Dr. Mintz-Hittner said bevacizumab was chosen over ranibizumab because the molecule is three times larger and less likely to escape the eye and cause systemic problems. It also has multiple advantages over laser, including cost and ease of use, and it doesn't destroy the peripheral retina.

Finally, she said retreatment is not an issue. "There's a natural endpoint for ROP, and that's the completion of vascularization." One shot is generally all it takes, with the exception of very early term babies, who may need one more.

—Miriam Karmel

1 Mintz-Hittner, H. A. et al. *N Engl J Med* 2011;364(7):603–615.
2 Reynolds, J. D. *N Engl J Med* 2011;364(7):677–678.