

# Niacin Produces Vasodilation of the Retinal Arterioles

There is great interest in vasodilating compounds because of their potential therapeutic effects on ischemic ocular vascular disease.

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**N**iacin was shown to produce retinal arterial vasodilation, however, further study is needed to investigate the potential therapeutic use of the compounds in the treatment of ocular ischemic vascular diseases.

In a report in *Current Eye Research*, Juan E. Grunwald, MD, and colleagues from the University of Pennsylvania, investigated the effect of niacin on the retinal vasculature of patients with age-related macular degeneration (AMD). Dr Grunwald is a professor of ophthalmology at Scheie Eye Institute in Philadelphia. "Niacin is a B vitamin well-known for causing vasodilation and flushing," the researchers wrote. It is one of the primary drugs for treating hypercholesterolemia and it also stimulates the production of prostaglandin D<sub>2</sub> via the cyclooxygenase pathway.

Previously, the authors reported that a group of nitric oxide-mediated vasodilators used mainly for the treatment of ischemic cardiac diseases produced an increase in optic nerve head circulation and retinal venous vasodilation. "We were interested in the effect of niacin on the retinal vasculature because its mechanism of action differs from that of the nitrates," they wrote.

## NONEXUDATIVE AMD

The study was performed in a group of patients with nonexudative AMD, as those patients have reduced choroidal blood flow based on previous laboratory work done by the research team. The 12 AMD patients in this

double-blind, randomized, placebo-controlled, crossover trial had an average age of 72 ±7 years and AMD features similar to those of category 3 or worse in the Age-Related Eye Disease Study (AREDS). The patients had fundus photographs of the posterior pole taken at baseline, 30 minutes and 90 minutes after a single dose of niacin or placebo.

Following a washout period using the alternate study drug, the protocol was repeated. Then, the diameters of two veins and one artery on each fundus photo were measured.

"An analysis of variance for repeated measures comparing the effects of niacin with those of placebo demonstrated a significant increase in the inferior temporal retinal artery diameter ( $P=.01$ ), with a 5.3 ±7.7% increase at 30 minutes ( $P=.05$ ) and 5.8 ±5.0% increase at 90 minutes ( $P=.003$ )," they wrote. The investigators found no significant changes in the temporal retinal veins.

The preferential arterial effect of niacin suggests the possibility of the synergistic use of niacin with nitrates to increase the caliber of both retinal veins and arteries, they said.

Because one of the main causes of visual impairment is ischemic ocular vascular disease, there is much interest in vasodilating compounds, Dr. Grunwald and colleagues noted. ■

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Barakat MR, Metelitsina TI, Dupont JC, Grunwald JE. Effect of niacin on retinal vascular diameter in patients with age-related macular degeneration. *Curr Eye Res.* 2006;31:629-634.