

Aspirin, Anticoagulant Drugs Do Not Promote Vitreous Hemorrhage

Patients with vein occlusions, however, had a higher percentage of vitreous hemorrhage when they used anticoagulant drugs.

BY LAURA SUAREZ, ASSOCIATE EDITOR

It has been previously determined safe for patients with diabetic retinopathy to use aspirin without increasing the risk for vitreous hemorrhage (VH).¹ According to a similar study by Robert N. Frank, MD, other anticoagulant drugs may safely be used by this population.²

The Early Treatment of Diabetic Retinopathy Study (ETDRS)¹ found that the cumulative incidence of new vitreous hemorrhage was similar in patients both taking aspirin (650 mg/day) or placebo. This was a prospective analysis of 3,711 patients who were followed for 4 years to determine the risks and benefits of managing nonproliferative or early proliferative diabetic retinopathy with argon laser photocoagulation and aspirin therapy. Patients were randomized to receive either aspirin or placebo.

HEMORRHAGE RISK

An examination into the effect of other drugs with anticoagulant properties on VH provided evidence that

TABLE 1. AGENTS WITH ANTICOAGULANT PROPERTIES

1. aspirin
2. warfarin
3. clopidogrel
4. NSAIDs
5. cyclooxygenase-2 inhibitors

Anticoagulant drugs do not increase the risk of vitreous hemorrhage in patients with proliferative diabetic retinopathy.

in patients with proliferative diabetic retinopathy, these agents do not increase the risk of hemorrhage.² Dr. Frank presented this finding at the 2005 Association for Research in Vision and Ophthalmology Global Networking meeting. He studied the effects of aspirin and other anticoagulant agents including warfarin, cumadin, clopidogrel, NSAIDs or cyclooxygenase-2 inhibitors (Table 1) on VH incidence.

These drugs containing anticoagulant agents may be used as therapy for atrial fibrillation or artificial cardiac valve, he said. Dr. Frank is a professor of ophthalmology at the Kresge Eye Institute, Wayne State University School of Medicine in Detroit.

"The upshot of this is that drugs that have anticoagulant effects do not have an adverse effect on the prevalence and incidence of vitreous hemorrhage in patients with the diagnosis of proliferative diabetic retinopathy," Dr. Frank said. Interestingly, those patients who did not use anticoagulant drugs showed more incidence of VH than those patients who did.

MODERATE, SEVERE RETINOPATHY

Because it was impossible to conduct a prospective examination of patients with diabetic retinopathy with

TABLE 2. PRESENCE OF VH IN PATIENTS WITH PROLIFERATIVE DIABETIC RETINOPATHY

Patients on aspirin		Patients not on aspirin		Patients on warfarin		Patients not on warfarin	
with VH	231	with VH	540	with VH	36	with VH	735
without VH	231	without VH	368	without VH	33	without VH	566

respect to the effect of anticoagulants on VH, Dr. Frank performed a retrospective analysis on data from 1,270 patients with proliferative diabetic retinopathy, 262 patients with central vein occlusions and 245 patients with branch vein occlusions. Included in the analysis was presence of VH, medication being taken at time of VH and time of last eye examination. All patients had moderate to severe diabetic retinopathy and were treated by a physician at the Kresge Eye Institute between 1999 and 2003.

A contingency table was used to analyze the data. For patients taking aspirin, 231 experienced VH. The same number of patients taking aspirin did not experience VH during the study. In those refraining from aspirin intake, 540 experienced VH compared to 368 who did not ($P = .0202$) (Table 2). Aspirin seemed to reduce the incidence of VH in patients with proliferative diabetic retinopathy. This slightly varied from ETDRS results, Dr. Frank said.

MORE VH

Other agents including warfarin and cumadin also seemed to positively effect incidence of VH (warfarin: 36 patients with VH, 33 without; not on warfarin: 735 with VH and 566 without, $P = .536$).

"Patients who were not using warfarin or cumadin actually had more vitreous hemorrhage [than patients who used it]," Dr. Frank said. "For all other potentially hemorrhage-causing anticoagulant agents seen in our proliferative diabetic retinopathy sample, it would appear that there is no adverse risk associated with the use of these agents, which is very encouraging."

However, when Dr. Frank analyzed results for patients with branch or central vein occlusions, he discovered that patients who were on anticoagulant drugs had a higher instance of VH. This was also true for aspirin.¹

CATEGORIZED BY DIABETES TYPE

Results were then categorized by patients with type 1 and 2 diabetes.² This was done to check the accuracy of study results, Dr. Frank said. A greater number of patients with type 1 diabetes had VH compared to type 2 diabetic patients.

When type 2 diabetes patients were broken down in to those who used insulin therapy and those who did not, Dr. Frank found that VH occurred more frequently in patients who used insulin therapy. These results were analyzed using data from the Wisconsin Epidemiological Study of Diabetic Retinopathy (WESDR).³

This cohort enrolled patients with diabetes in 11 surrounding counties in southern Wisconsin. Ronald Klein, MD, and colleagues investigated the progression of diabetic retinopathy in 996 type 1 diabetic patients with younger-onset and 1,370 type 2 diabetic patients with older-onset diabetes.

Vitreous hemorrhage occurred more frequently in patients who used insulin therapy.

After examination, Klein et al determined the frequency and incidence of diabetic retinopathy and other diabetes complications, as well as identified risk factors for developing these complications. The incidence was higher in type 1 diabetic patients.

"Results were not identical as to what they were in the WESDR study, but they were consistent with them, so we felt that our analysis, for all its retrospective bias, was probably on target," Dr. Frank said during the presentation.² ■

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3. Klein R, Klein BEK, Moss SE, Davis MD, DeMets DL. Glycosylated hemoglobin predicts the incidence and progression of diabetic retinopathy. *JAMA.* 260:2864-2871.