Loss of Vision Induced by the Color White: A Sign of Carotid Occlusive Disease

Loss of vision in one eye is a well-known manifestation of carotid occlusive disease. Occasionally, the loss of vision occurs with exposure to sunlight, evidence of carotid disease as well. The spells are postulated to be caused by impaired regeneration of retinal pigment in the ischemic eye. We would like to report a new symptom of this pathogenic mechanism: spells of vision loss induced by the color white. It is important to recognize this symptom because it can be a sign of impending carotid stroke.

A 52-year-old hypertensive man suddenly noticed loss of vision in his right eye when he looked at a white wall while at home. The episode lasted about 5 minutes. The patient also noticed blurring of vision if he looked at other bright white objects. He consulted a doctor who performed an ophthalmoscopic examination that was normal. During the following days, the patient had more episodes of right visual loss induced either by the color white or sunlight. Ten days after the first events, he experienced left hemiparesis. A cranial computed tomographic scan disclosed a recent infarction in the territory of the right carotid artery. Cerebral angiograms demonstrated a complete occlusion of the right internal carotid artery 1 cm distal to its origin. The following tests were performed with normal results: erythrocyte sedimentation rate, complete blood count, renal function, liver function, cholesterol, triglycerides, serum glucose, chest x-ray, electrocardiogram, and echocardiogram. Luetic serology and tests for antiphospholipid antibodies were negative.

In the absence of chorioretinitis or retinal pigmentary degeneration, vision loss in bright light is related to severe carotid occlusive disease occurring on a hemodynamic rather than an embolic basis. The color white represents a photostress test in the same way as sunlight. However, as the color white represents less intensity of light than sunlight, it may suggest more severe carotid artery disease than loss of vision in sunlight. It is important to be aware of this puzzling phenomenon, because if unrecognized, this trivial symptom may evolve into a severe stroke.

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References

Response
We agree with the observation that vision loss induced by the color white is a symptom of carotid disease. This newly recognized symptom has the same significance as loss of vision that occurs with exposure to sunlight, suggesting possible stenosis or complete occlusion of the hemolateral carotid artery.

It is possible that this symptom may suggest more severe carotid artery disease than loss of vision in sunlight.

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Technology Used to Assess Vasomotor Reactivity Affects Results

We would like to compliment Dr. Kleiser and Dr. Widder on their report in the February 1992 issue of Stroke demonstrating that the Doppler CO2 test can identify patients with carotid occlusion who have an elevated stroke risk. As they noted, their results are not greatly dissimilar from those reported by our group (Durham et al). The authors, however, unfortunately failed to understand that our report involved the use of stable xenon computed tomograph–enhanced cerebral blood flow measurements and not SPECT.

The importance of correctly identifying the technology used is that each technology has specific advantages and disadvantages. Our study integrated the anatomy of each computed tomographic slice directly with blood flow information for the elimination from the data base of regions that had greater than 50% infarction. Without this information, our data would not have led to the same conclusion.

The importance of a quantitative blood flow methodology that can look at the absolute rise or fall of flow is also important to stress because, in our experience, only individuals whose baseline flow values in a vascular territory fell more than 5% were at elevated risk of stroke. Thus, the ability to quantify flow in finite regions of the brain was an important parameter for classification of patients in our study.

The natural history data of Dr. Kleiser and Dr. Widder generated by simple bedside technology is an important contribution. Their observations provide rational support for the observations of many clinicians. They have identified patients at increased risk of subsequent stroke who may benefit from focused intervention. This kind of study should naturally lead to a reexamination of treatment options for high-risk patients with internal carotid artery occlusion.

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Stroke. 1992;23:1179
doi: 10.1161/01.STR.23.8.1179.a
Stroke is published by the American Heart Association, 7272 Greenville Avenue, Dallas, TX 75231
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Print ISSN: 0039-2499. Online ISSN: 1524-4628

The online version of this article, along with updated information and services, is located on
the World Wide Web at:
http://stroke.ahajournals.org/content/23/8/1179.1.citation

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