

Atropine and Epinephrine for IFIS

Combining a topical and an intracameral agent seems to be more effective than using either agent alone.

BY SAMUEL MASKET, MD

Generally associated with the systemic use of alpha-1A blockers for improved urinary bladder function, intraoperative floppy iris syndrome (IFIS) was well defined by Chang and Campbell,¹ and it can represent an increased risk of cataract surgical complications. A subsequent, multicenter investigation, however, demonstrated that a number of strategies can reduce the likelihood of complications to normal or nearly normal levels. These methods include the use of iris hooks or pupillary ring devices and/or the alteration of fluidic inflow in combination with the use of highly retentive viscoagents. Additionally, I have advocated administering atropine sulfate 1% eye drops for 2 or 3 days prior to surgery. Recently, I have combined the use of this topical drug with intracameral epinephrine for more effective prophylaxis.

ATROPINE: WHY AND HOW?

Given that the manifestations of IFIS may include a poorly dilating pupil and progressive intraoperative miosis in the presence of a weakened iris dilator muscle, it is logical to employ the strongest iridoplegic agent available. This reasoning is particularly strong, because cyclopentolate and tropicamide have failed to obtain and maintain pupillary dilation in cases of IFIS.

I instruct patients with IFIS to administer atropine 1% t.i.d. for 2 days prior to surgery and again on the day of surgery. I emphasize the need to continue the systemic

“Cyclopentolate and tropicamide have failed to obtain and maintain pupillary dilation in cases of IFIS.”

alpha-1A blocker, most often tamsulosin, because the use of atropine may increase patients' risk for acute urinary retention should the alpha blocker be discontinued. The chief effect of atropine is its prevention of intraoperative, progressive miosis—particularly because pupillary stretching methods are of no help or are contraindicated. Should the combined effects of atropine and other routine mydriatic agents provide an amply sized pupil for surgery, it is generally unnecessary to employ other strategies. In those rare instances that pupillary dilation is not sufficient for surgery, I employ disposable iris hooks in a diamond or pentagonal configuration.

ADDING INTRACAMERAL EPINEPHRINE

Recently, I began combining the aforementioned regimen with intracameral, unpreserved epinephrine in a 1:2500 dilution, in keeping with the method of Joel Shugar, MD² (see his article on page 72). In my view, the synergy of atropine and epinephrine is more effective than either agent alone, and the relatively strong con-

centration of epinephrine seems capable of stimulating the weakened dilator muscle. I have had limited experience (two cases), however, with the use of epinephrine alone. The patients did not report their use of tamsulosin until during their procedures, and I needed additional strategies for managing IFIS.

In all but one of the approximately 20 cases in which I had combined atropine and epinephrine, surgery was routine. The exception involved an 88-year-old, blue-eyed male whose pupillary diameter was less than 2mm after the administration of atropine and epinephrine as well as the routine application of additional mydriatics. In this case, my use of iris hooks made the surgery otherwise routine.

CONCLUSION

Several strategies have evolved for managing IFIS, and they are complimentary rather than competitive. I employ a pharmacologic approach preoperatively and at the outset of surgery. If those agents prove inadequate, I may then apply other methods of my choosing, because the use of dilating agents does not preclude the application of other strategies. For that reason, I strongly advocate a pharmacologic approach as the initial strategy for managing IFIS. I reserve the use of iris hooks and other methods for the rare cases in which the medications are insufficient. ■

Samuel Masket, MD, is in private practice in Los Angeles and is Clinical Professor of Ophthalmology at UCLA. Dr. Masket may be reached at (310) 229-1220; avcmasket@aol.com.



1. Chang DF, Campbell JR. Intraoperative floppy iris syndrome associated with tamsulosin (Flomax). *J Cataract Refract Surg.* 2005;31:664-673.

2. Shugar, JK. Intracameral epinephrine for prophylaxis of IFIS [letter]. *J Cataract Refract Surg.* In press.