EDITORIALS

Bringing the Management of Accommodative Esotropia Into Sharp Focus

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ACCOMMODATIVE ESOTROPIA IS THE MOST COMmon childhood esotropia, and a frequent primary diagnosis for the pediatric ophthalmologist or ophthalmologist caring for young children. It results when the obligatory accommodative convergence that accompanies reflexive accommodation (in response to retinal blur from uncorrected hypermetropia) is insufficiently opposed by fusional divergence.[1] Conventional management calls for initial full hypermetropic correction to eliminate the strabismus (and allow binocularity to develop) and treatment of any amblyopia (commonly present). In theory, with full hypermetropic correction in place, no accommodation is then required for distance fixation. Hence, no accommodative convergence is stimulated so no strabismus results, and only a modest amount of accommodation is needed for near fixation (three or four diopters for the typical young child). Should an esotropia persist nearer, a bifocal can be employed.

After many months or a few years of orthotropia during which time binocularity (and its components, including "fusion") develops, the hypermetropic correction can be gradually decreased. In so doing (and assuming clear vision and alignment are maintained), the older accommodative esotrope will then accommodate more than that necessary while wearing the full correction, and fusional divergence will be stimulated and developed to counterbalance accommodative convergence. Despite the plethora of high technology that brings precision and accuracy (and "glitz") to patient management in other subspecialty areas of ophthalmology, imprecise empirical methods are currently used for this maneuver, "trial-and-error" chief among them. A popular technique entails holding up low-power minus lenses (−0.50 diopters or −0.75 diopters) over their current spectacles and having the child look at a near and distant target while their alignment is reassessed. If orthotropia is maintained (perhaps with a small heterophoria), the hypermetropic correction is reduced and the process is repeated in a few months. This of course runs the risk of producing asthenopic symptoms and/or recurrent esotropia since "real-world" conditions are not used but merely extrapolated from the examining lane.

In children with modest amounts of hypermetropia, the hope is usually that the reduction in the prescription strength will be enough for the glasses to be shed eventually. With higher amounts of hypermetropia, even if there is enough fusional divergence (to fully counterbalance accommodative convergence and maintain alignment), asthenopia would surely result if clear vision is maintained in a sustained manner (certainly the goal for a developing visual system).

The study by Somer and associates,[2] published in THE JOURNAL this month, is an important step in adding reproducible objective data to the above highly subjective process, subjective both on the part of the doctor and patient. It uses the well-known (or "well-heard-about") but sparsely utilized technique of dynamic retinoscopy[3] to help predict which patients with accommodative esotropia will be able to have their spectacle power considerably reduced and which ones will not. They show that patients with accommodative esotropia with less than three diopters of hypermetropia (group 1) can comfortably tolerate a two diopter reduction of spectacle strength, whereas those with three to five diopters of hypermetropia (group 2) can comfortably tolerate only half that much. By the same token, three-fourths of the group 1 patients were weaned from their spectacles, whereas all of the group 2 patients remained dependent upon them.

Some readers, myself included, may harbor some reservations about their study population, since their patient demographics vary somewhat from customary expectations. For example, their group 1 patients (ac-

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commodative esotropia with lower hypermetropia) have a relatively advanced age of onset (four and a half years) for this diagnosis compared with most previous studies. However, despite that (and perhaps some other minor variances), their finding of reduced accommodative amplitude in the nondominant eye that precedes the same occurrence in the dominant eye is an important observation. That finding alone may not substantially alter how these patients are managed, but it suggests that there is a door that needs to be fully opened that may lead to a better understanding of this diagnosis.

Although their conclusions should surprise few experienced practitioners in this field, (that is, children with lower amounts of hypermetropia have a greater chance of discontinuing their glasses), their meticulous assessment and description of the underlying processes can be a solid foundation for further work in this mundane but significant threat to our children's visual system.

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