Fellowship training in retinopathy of prematurity

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It has become increasing difficult for nurseries in the United States to provide care for infants with retinopathy of prematurity (ROP). Many eye physicians who previously performed ROP diagnostic examinations have stopped doing so because it is time-consuming, reimbursement is poor, and/or medico-legal risks are high. One way to address this personnel shortage is for pediatric ophthalmology (or vitreoretinal) fellowship programs to provide excellent training in the diagnosis and treatment of ROP. Currently, up to 15 % of pediatric ophthalmology training programs expose their fellows to minimal or no ROP, and even those fellows obtaining more experience do not necessarily gain the skills required to independently provide ROP care upon graduation.

In the previous issue of the *Journal of AAPOS*, Myung and colleagues[1] compared the results of image-based (RetCam) ROP diagnosis by 5 pediatric ophthalmology fellows to results obtained by an experienced ROP examiner. For both type 2 ROP or worse and for ROP that required treatment, they found specificity of fellows' diagnoses to be greater than 90%, but sensitivity was unacceptably low, at approximately 50%. They conclude that, taken together with other factors, their findings "suggest the need for increased emphasis on ROP education in training programs."[1]

An important limitation of this study, as the authors point out, is that their results may not accurately translate to diagnostic performance with bedside indirect ophthalmoscopy. It is sometimes difficult to see subtle findings on a photograph, such as a faint stage 1 line or very mild stage 3. The authors indeed found that the most common error was identification of stage. One would expect that these subtle findings are more likely to be recognized by an expert with considerable ROP examination experience than by fellows.

There are different educational models for training fellows in ROP diagnosis. In some programs, after an initial period of close supervision, fellows increasingly do ROP examinations independently, and an attending physician examines only worrisome cases. Although the findings of Myung and associates[1] might suggest that fellows will miss cases of treatable disease, this will not necessarily occur as long as the fellow's "alarm" is set at an appropriately low level of disease severity. For example, if the attending is asked to examine any child with pre-plus or prethreshold disease (any ROP in zone 1, any stage 3, or plus disease), then it is unlikely that the diagnosis of type 1 ROP will be delayed. In another educational model, the attending and fellow examine all infants together. This approach has the advantage of providing continuous feedback to fellows, allowing them to calibrate their judgments with attending physicians' findings. In this scenario, imaging systems such as Keeler video indirect ophthalmoscopy are ideal for allowing trainees to view the attending physicians' examinations and vice versa.

How can we improve our training of fellows in the care of infants with ROP? There is no substitute for experience, so each fellow should do as many bedside examinations as possible. If a fragile infant can only tolerate one examination, then it is ideal to have an imaging system that allows for simultaneous viewing by attending physician and fellow. An image-based instructional program would also enhance fellowship training. At meetings of investigators for multicenter clinical trials in ROP, multiple posterior pole images are presented and discussed to calibrate investigators to the degree of abnormality required to diagnose plus disease. Similar educational sessions would no doubt enhance fellows' diagnostic skills and their understanding of ROP.

As our paradigm for screening and treatment evolves in the future, our educational approach will need to evolve as well. If we move toward image-based diagnosis, then physicians will likely perform indirect ophthalmoscopy only on those infants who fail an initial screen, providing even fewer opportunities for bedside examinations by trainees. In this scenario, fellows could gain additional experience by assisting in imaging and/or interpretation of photographs. Whatever our specific approach, we need to ensure that our fellows get a rich exposure to ROP diagnosis and treatment, so that the next generation will continue to advance the care of premature infants with eye disease.

Reference

1. Myung JS, Chan RVP, Espiritu MJ, et al. Accuracy of retinopathy of prematurity image-based diagnosis by pediatric ophthalmology fellows: Implications for training. J AAPOS 2011;15:573-8.

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