Commentary on guidelines for screening for retinopathy of prematurity

Anna Ells, MD, FRCSC; Warren Hindle, MD, FRCSC

In the early 1990s one of us (W.H.) recommended to the Canadian Association of Pediatric Ophthalmologists (CAPO) that standards should be established for screening for retinopathy of prematurity (ROP) in premature infants in Canadian nurseries. From 1994 to 2000 a CAPO ad hoc committee met on numerous occasions and produced several drafts, leading to the guidelines in the preceding document. The guidelines have been approved by CAPO, the Canadian Ophthalmological Society, and the Fetus and Newborn Committee of the Canadian Paediatric Society.

Screening programs should target infants at risk for severe ROP. There is no consensus regarding the minimum gestational age and birth weight of premature infants to be screened. There are only a few evidence-based studies that have provided supportive data for the guidelines. The infants believed to be at highest risk for significant ROP are those born at 30 weeks' gestation or less, and those with a birth weight of 1500 g or less. Ordinarily, ROP does not appear until 4 to 6 weeks after birth, and severe ROP that would require treatment does not usually manifest before 6 weeks. However, earlier reports describe “Rush” disease, included as zone I “plus disease” in the international classification of ROP, occurring as early as 3 weeks but not reaching a severity requiring treatment until 6 weeks or later. This more severe variant of ROP is less amenable to treatment unless treated early. The consensus was to recommend that screening begin 4 to 6 weeks after birth.

The fundamental objective of screening is to identify eyes with progressive severe stage 3 ROP that is likely to compromise vision and the eye if left untreated. Although it is not clearly defined, there is a point in the development of severe ROP beyond which treatment fails to prevent visual disability and ocular morbidity that will persist for the lifetime of the patient. Earlier investigators emphasized that decision-making for treatment must take into consideration the qualitative change in the ROP and how rapidly it is taking place, with cognizance of the chronologic age and adjusted age of the infant at the time of the examination. Hardy and colleagues, as part of the natural history portion of the Cryotherapy for Retinopathy of Prematurity study, reported a median time of 11 days from the first observation of any ROP to the onset of prethreshold disease, a quantitative measure of stage 3 ROP, in eyes that required treatment. Accordingly, the maximum tolerable interval between examinations of infants at risk for ROP in zone I or zone II should be 2 weeks. We believe that infants in whom examination has established the presence of any ROP in zone I or zone II should be examined weekly, at least until clear resolution of the ROP is taking place and vascularization has progressed into zone III. However, our committee could not come to an agreement regarding this issue, and therefore the guidelines recommend that after ROP has been detected, examinations should be carried out at least every 2 weeks, and more frequently with increasing severity of the disease. We do agree that it is reasonable to leave discretionary latitude to the examiner provided that, as stated in the guidelines, infants with plus disease, ROP in zone I or evidence of stage 3 ROP are examined at least weekly.

These guidelines clearly state the responsibility of both the examining ophthalmologist and the attending pediatrician or neonatologist involved in the infant’s care. This is important given the medicolegal milieu that now surrounds the screening and management of ROP. The transfer of the infant with the information regarding the evolution of the ROP, its current status and the recommended timing of the next examination is fundamental to the continuity of care needed to minimize visual disability and ocular morbidity.
Any infant who has had ROP of any stage should have a complete eye examination at 6 to 12 months of adjusted age. Early intervention for the more frequent anisometropia, amblyopia, high refractive errors and strabismus that occur in infants who have had even less severe ROP has obvious and well-recognized benefits.

It is an exciting time in the evolution of knowledge of both ROP and the factors that influence it. Much work is ongoing in the prevention and treatment of severe disease. These guidelines were developed from the literature as well as the expertise of those who have been caring for infants with ROP for many years. We have initiated a review of the cases of infants in Canada who required treatment for stage 3 ROP over the last decade to enable evidence-based modification of the guidelines.

REFERENCES