Letter to the Editors

Ultrasonic Evaluation of Retinopathy of Prematurity

To the Editors:

We read with interest the article by Jokl et al. that recently appeared in the Journal. They evaluated eyes with retinopathy of prematurity (ROP) using 10-MHz B-scan ultrasonography. In their small series of 34 eyes with ROP, stage was misdiagnosed in 10 eyes. Thus, their results were not sufficient to recommend ultrasonography as a screening procedure for ROP. The study was further limited by the fact that eyes with zone 1 ROP were not included. Zone 1 ROP may present as flat, spreading neovascularization without well-defined demarcation ridges and rapidly progress to treatable stage, without being detected on ultrasonography.

Early detection and treatment of ROP have recently been stressed. With ultrasonography, ROP may not be detected or may be detected beyond the treatable stage. The lack of objective, well-defined parameters and inter-observer variability make ultrasonography less suitable as a screening tool. Moreover, severity of plus disease is an integral component for determining activity of ROP. It influences the decision regarding treatment, but cannot be evaluated using ultrasonography.

For situations in which indirect ophthalmoscopy is limited by a lack of expertise, the RetCam (Massie Research Laboratories, Pleasanton, CA) offers a noninvasive, simple way to diagnose and document ROP. Ultrasonography does indeed avoid the need for a lid speculum and pupillary mydriasis and has a role in early detection of retinal detachment in stage 4 ROP. It is useful in stage 5 ROP for evaluation of retinal funnel status to prognosticate surgical outcome. As Jokl et al. suggest, ultrasonography may serve as an adjunctive tool to detect ROP in nondilating pupils (as encountered in severe plus disease) or other causes of media opacities when screening the retinal periphery is difficult.

The study by Jokl et al. needs to be expanded to include a larger number of cases; clear, objective parameters to reduce inter-observer variability; and all stage and zones of ROP before ultrasonography can be suggested for routine screening of ROP.

REFERENCES


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Reply:

We appreciate the insightful comments of Drs. Azad and Chandra regarding the uses and limitations of 10-MHz ultrasound in the detection of stages of ROP. We agree that 10 MHz has its limitations and have recently investigated the use of 20-MHz ultrasound, the findings of which are described in a manuscript currently under review. We are expanding on this body of work, and are particularly interested in detection of plus disease by ultrasonography. With further improvements in ultrasound technology, we predict a practical screening application for this technique to be supplemented by the current techniques of digital photography and, of course, the clinical examination.

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