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Correspondence

Re: Chang et al.: Accuracy of diagnostic imaging modalities for classifying pediatric eyes as papilledema versus pseudopapilledema (Ophthalmology. 2017;124:1839-1848)

TO THE EDITOR. We read with much interest this article by Chang et al.,1 which evaluated the accuracy of diagnostic imaging modalities for papilledema (PE) versus pseudopapilledema (PPE) in pediatric patients. We concur with our colleagues regarding the importance of reaching the correct diagnosis, given the potentially life-threatening consequences when PE is misclassified as PPE. We would, however, like to temper their statement that the best imaging technique rests with fluorescein angiography (FA).

First, some imaging techniques are standardized, such as optical coherence tomography, fundus photography, autofluorescence, or FA, whereas results for B-scan ultrasound imaging vary based on the sonographer. In this article, ultrasound imaging was performed by a technician as opposed to a radiologist or an ophthalmologist, either of whom complete closely supervised, anatomically specific training on clinical equipment. Optimizing machine parameters seemed not to be possible, because changes of gain were done only in the presence of a hyperechoic mass on the optic nerve head, and only axial, transverse, and longitudinal scans were obtained during the examination. Some drusen are not calcified and are not hyperechoic. They are harder to detect but still visible on ultrasound imaging. Sonographer(s) in the article did not seek out certain data, such as dilation of the perioptic nerve sheath or a hyperechogenic artifact, both of which are very suggestive of PE or PPE, respectively.2 Moreover, only 5 to 7 still images focused on the optic nerve were captured, and only the most representative image was chosen for presentation to the image readers.

Ultrasound imaging is a dynamic and real-time examination that should be performed and interpreted by the same person, preferably a physician trained in eye imaging. In this article, ultrasound imaging results depended on both the technician who might easily miss a drusen, especially a buried one, and on the readers who classified PE or PPE based on a single frozen image. Moreover, all 3 readers were neuro-ophthalmologists, and it could have been interesting to include 1 radiologist specialized in eye imaging.

Second, detection of drusen is significantly increased with the use of 20-MHz probes as compared with 10-MHz,3 especially for the buried type which is more frequently found in children. Third, in the literature some studies reported more conclusive ultrasound imaging results as compared to FA for detection of drusen in children4 or for the buried type.

Ideally, comparing the accuracy of different diagnostic imaging modalities should be done carefully using the best available techniques and equipment. This study’s limitations probably contributed to much poorer imaging and sonographic results than what might have been available if skilled physicians specialized in eye imaging performed the ultrasound imaging, using a state-of-the-art machine and higher frequency probes. In our institution, we perform an ultrasound examination first in children with a suspected diagnosis of PE or PPE because of its high sensitivity in the detection of drusen, especially buried ones, while also avoiding potential risks associated with an injection for FA (an invasive procedure). We believe further studies are needed before we can draw conclusions about the best imaging modality and that caution should be exercised before advising FA as a first-line or sole diagnostic examination.

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References