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We read with much interest the article by Hoffmann et al in the February 2018 issue of the *American Journal of Neuroradiology* regarding the measurement of the optic nerve using MR imaging on pediatric patients. The authors provided values for optic nerve sizes correlated with the ages of enrolled children.

However, despite stating in their introduction that the use of new volumetric methods with thin-cut images could help obtain accurate measurements, they provided only 2D measurements of the optic nerve using 2D sequences, which are less accurate and reproducible than volumetric data.[1] Volumetry is dependent on neither orbital morphology nor volume nor on the disposition and course of the optic nerve. Optic nerves are flexible structures with a unique orbital fixed anchor point at the apex. Thus, they easily stretch or become lax in their orbital portion, especially in the case of orbital diseases such as optic neuropathy or optic nerve tumors. Intraorbital portion length varies among individuals. Optic nerves may have a tortuous or stretched path in the case of intracranial hyper- or hypotension, respectively. Therefore, 2D measurements obtained from 2 fixed distances at 3 and 7 mm posterior to the lamina cribrosa in the axial plane as performed in this article vary so much among individuals that the authors' conclusions could be questioned.

Moreover, the measurements of the optic nerve in the coronal plane are inaccurate due to the oblique course of the nerve. The use of coronal acquisitions orthogonal to the nerve is mandatory to provide accurate measurements. Thus, coronal diameters are probably overestimated in this article. Some authors suggest measuring the mean cross-sectional area of the intraorbital portion of each optic nerve,[2] but volumetric measurements are better and more accurate.[3]

The use of STIR sequences is also questionable because this sequence has the disadvantage of producing a high signal from CSF, obscuring the edge of the optic nerve and, consequently, blocking a clear image of the optic nerve sheath. The optic nerves were reported to be about 20% greater than with a FLAIR sequence.[2]

Thus, the measurements of the optic nerve provided in this article should be used with caution.

To correct these weaknesses and provide the most accurate measurements of the optic nerve, we advise developing a prospective study with the same MR imaging acquisitions on the same MR imaging device for all patients, preferably using high-field MR imaging (3T or more), including 3D high-spatial-resolution sequences with inframillimetric slices without gaps. Fat- and CSF-saturated sequences with high signal and contrast-to-noise ratio should be used. Acquisition time should remain short to avoid kinetic artifacts. Patients should be advised to look at a fixed point in the MR imaging to avoid eye movement, which may modify the course of the optic nerve.

Automatic or semiautomatic volumetry can be easily performed on many posttreatment software packages. In a routine radiologic setting, image postprocessing with quantitative analysis can be achieved rapidly (10 minutes) by experienced radiologists.[1,3] Volumetry has been widely validated in neurologic and orbital studies and is reproducible.[1,4]

Finally, we agree with the authors that there is a need to establish a standardized method for the measurement of the optic nerve on MR imaging, but we believe that volumetric measurements should be made including the entire volume of the optic nerve starting from the papilla and ending at the point of convergence of the extraocular muscles at the tendinous ring of the orbital apex,[1] or ending at the chiasma, to provide accurate and reproducible measurements.

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