match subjects in each group, the investigators were unable to detect any differences in either outcome. It should not be lost, however, that the authors derived this work from an administrative database. Such datasets are being increasingly exploited in clinical research, offering the allure of large numbers, but they frequently are missing key, potentially confounding data elements. Moreover, by including diagnostic and procedural codes entered by legions of persons at the local level, they are vulnerable to misclassification bias. Although the authors are to be congratulated for their meticulous efforts to derive a credible conclusion from their dataset, they wisely alert the reader that "the results of our study are best interpreted as establishing the need for and equipoise to conduct a prospective randomized trial," a cautionary note for which they should also be congratulated.

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Does macrocephaly require MRI, CT, ultrasound, or a tape measure?

— **Paul G. Fisher, MD**

Macrocephaly has a lengthy differential diagnosis, but most often an enlarging head circumference in the first year is benign, frequently familial. Many pediatricians will obtain an ultrasound to confirm benign macrocrania in children who are otherwise neurologically normal yet sometimes mildly delayed. Does a normal ultrasound or one showing enlarged extra-axial spaces at the frontal and interhemispheric regions or even mildly prominent ventricles end the diagnostic process? To answer this question, Haws et al conducted a single institution historical cohort study of 466 patients with benign macrocrania diagnosed by ultrasound. Eighty-four patients underwent subsequent computed tomography or magnetic resonance imaging and sometimes neurosurgical evaluation. Regardless, none of the 466 patients were diagnosed with hydrocephalus and none required neurosurgical evaluation.

The authors conclude that ultrasound diagnosed benign macrocrania without neurologic findings does not require subsequent computed tomography, magnetic resonance imaging, or neurosurgical evaluation. Although this is true, their study does not address directly whether macrocrania should prompt ultrasound in infants whose head circumference rapidly crosses percentiles. However, a closer look at the head circumferences of their cohort on the World Health Organization growth chart illustrates a "classic pattern" familiar to the seasoned pediatrician: a rapid crossing of the percentiles in the first 4 to 6 months, followed thereafter by a trajectory roughly paralleling the slope of the 95th percentile. Such a pattern has been well known to be associated with benign macrocephaly, or the older terms benign external hydrocephalus or benign subdural hygromas of infancy. Although these children might have some mild motor delay but no neurologic findings, patience and close observation with a tape measure alone is often sufficient, without ultrasound.

When macrocephaly, benign or pathologic, is at play, pediatricians are well served to rely on their own clinical exam and not rely on office staff measuring heads. If the child is neurologically normal and has only mild developmental delay, the child's head circumference pattern can be measured serially and monitored for this classic pattern. Everyone should remember a clinical rule: boys are about 35 cm on average at term gestation, with girls 34 cm, and the head grows 2 cm/month in months 1-3, 1 cm/month in months 4-6, and ½ cm/month in months 7-12.

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