

1. Boyev LR, Miller NR, Green WR. Efficacy of unilateral versus bilateral temporal artery biopsies for the diagnosis of giant cell arteritis. *Am J Ophthalmol* 1999;128:211-5.

2. Pless M, Rizzo JF III, Lamkin JC, Lessell S. Concordance of bilateral temporal artery biopsy in giant cell arteritis. *J Neuroophthalmol* 2000;20:216-8.

## More on the Restless Legs Syndrome and Spinal Anesthesia

**TO THE EDITOR:** In their letter about the restless legs syndrome (RLS) and spinal anesthesia (Nov. 20 issue), Crozier et al.<sup>1</sup> report that spinal or general anesthesia does not induce or exacerbate RLS, in contrast to the 8.7% incidence after spinal anesthesia in our earlier study.<sup>2</sup> As an explanation, they suggest that we misdiagnosed RLS. In our study, RLS was diagnosed according to strict clinical criteria involving several personal interviews, whereas Crozier et al. used a questionnaire in which questions regarding RLS symptoms were included in a much longer list of heterogeneous items. Their method has not been validated for diagnosing RLS, and Crozier et al. do not detail the exact criteria they used to determine the presence or absence of RLS. Their assessment did not include measures of the severity of RLS, making it impossible to conclude that “no patients had . . . worsening of preexisting symptoms.” In addition, no attempts were made to control for postoperative opioid use. Opioids are a well-established, effective treatment for RLS.<sup>3</sup>

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1. Crozier TA, Karimadian D, Happe S. Restless legs syndrome and spinal anesthesia. *N Engl J Med* 2008;359:2294-6.

2. Högl B, Frauscher B, Seppi K, Ulmer H, Poewe W. Transient restless legs syndrome after spinal anesthesia: a prospective study. *Neurology* 2002;59:1705-7.

3. Trenkwalder C, Hening WA, Montagna P, et al. Treatment of restless legs syndrome: an evidence-based review and implications for clinical practice. *Mov Disord* 2008;23:2267-302.

our methods and conclusions. We consider the conclusion in their article,<sup>1</sup> that spinal anesthesia causes RLS, unjustified — not because they misdiagnosed RLS symptoms, but because there was no control group undergoing similar surgery with general or local anesthesia. In addition, they did not differentiate, for example, between RLS and akathisia caused by neuroleptic antiemetic agents,<sup>2</sup> which were very likely to have been administered to a large number of their patients, nor did they allow for other perioperative causes of secondary RLS. We also contend that omitting the preoperative interview and then attempting to determine the incidence of preoperative RLS in the postoperative setting might easily result in the introduction of an error of uncertain magnitude.

Högl et al. claim that we did not detail our diagnostic criteria. This is incorrect: our questionnaire is provided as a Supplementary Appendix, available with our article at NEJM.org. We used the standard minimal International RLS criteria from a validated German translation,<sup>3</sup> together with questionnaires for depression and sleepiness, as has been done previously.<sup>3</sup> Using this method, we found an RLS prevalence of about 9%, which is similar to prevalences described elsewhere.<sup>3,4</sup> A presumptive diagnosis of RLS was confirmed by a neurologist.

Högl et al. claim that we could not detect a worsening of the symptoms, since we did not quantify severity. We considered the qualitative approach of asking patients whether their symptoms had worsened to be adequate for clinical purposes. No patient received opioids after the first postoperative day, and opioids are not known to have a prophylactic effect on RLS.

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**THE AUTHORS REPLY:** We do not agree with the points that Högl et al. make in their objections to

1. Högl B, Frauscher B, Seppi K, Ulmer H, Poewe W. Transient restless legs syndrome after spinal anesthesia: a prospective study. *Neurology* 2002;59:1705-7.
2. Walters AS, Hening W, Rubinstein M, Chokroverty S. A clinical and polysomnographic comparison of neuroleptic-induced akathisia and the idiopathic restless legs syndrome. *Sleep* 1991; 14:339-45.
3. Rothdach AJ, Trenkwalder C, Haberstock J, Keil U, Berger K. Prevalence and risk factors of RLS in an elderly population: the MEMO study. *Neurology* 2000;54:1064-8.
4. Högl B, Kiechl S, Willeit J, et al. Restless legs syndrome: a community-based study of prevalence, severity, and risk factors. *Neurology* 2005;64:1920-4.

## Ultrasonographic Evaluation of Melamine-Exposed Children in Hong Kong

**TO THE EDITOR:** The recent melamine contamination of infant formula and milk products in China placed thousands of children in China and neighboring regions at risk for renal-stone formation and renal failure; six deaths were reported. In the wake of the crisis, screening programs were launched nationwide in the mainland of China. A similar program was initiated in Hong Kong<sup>1</sup>; here, we describe the results.

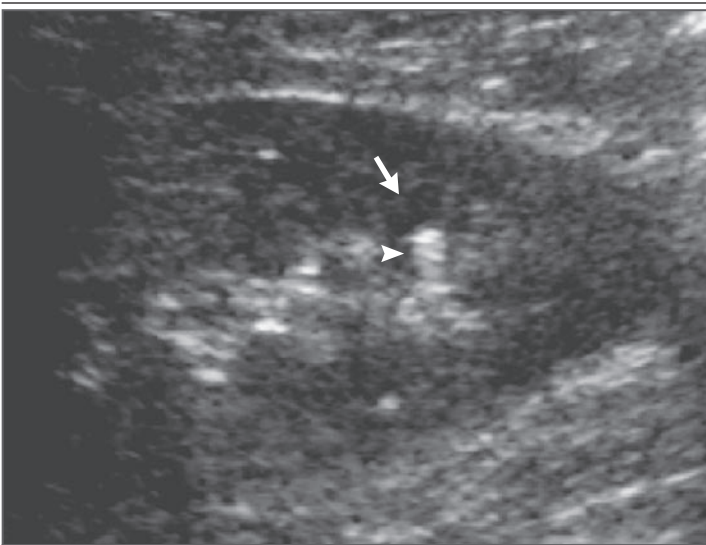
From September 28 through October 17, 2008, a total of 2140 children (1177 boys and 963 girls; age range, 1 month to 12 years; mean age, 6.45 years), all asymptomatic, underwent ultrasono-

graphic screening at Prince of Wales Hospital, one of the designated special assessment centers in Hong Kong. On ultrasonography, a stone (non-obstructive, 7 mm in length) was detected in only one child. Another child had increased echogenicity in both renal papillae. Six additional children had small, discrete, hyperechoic renal foci (<4 mm in diameter) near the renal papillae, all of which were associated with “comet-tail” artifacts<sup>2</sup> on gray-scale ultrasonography (Fig. 1). A “twinkling artifact”<sup>3</sup> was revealed by color Doppler imaging in two of the six children with hyperechoic foci. Limited low-dose computed tomography of the kidneys was performed in two of the six children and confirmed the presence of calcific foci.

It is unclear whether these echogenic renal foci were related to melamine-crystal deposition or were incidental findings. Renal histopathological characteristics in cats exposed to melamine have been shown to be due to melamine crystals, primarily within the distal tubules.<sup>4</sup> It is unknown whether filtered melamine crystals are trapped within the distal tubules in humans, rendering the renal papillae a susceptible site for deposition and aggregation. Currently, there is no noninvasive test that would ascertain the nature of these echogenic foci.

We encouraged the families of the children we screened to ensure adequate hydration, and we have planned for follow-up ultrasonography to be performed in the eight children with abnormal findings, 3 months after the initial studies.

Our current report from Hong Kong indicates that the adverse effects of melamine-tainted milk products do not initially appear to be as severe as first anticipated. In populations exposed to doses of melamine similar to those among the children in Hong Kong,<sup>5</sup> screening by means of ultrasonog-



**Figure 1.** Longitudinal Ultrasonogram of the Right Kidney in an 8-Year-Old Girl.

A small hyperechoic focus with a “comet-tail” artifact (arrowhead) is visible near a lower-pole hypoechoic pyramid (arrow) in an otherwise normal kidney. The child had ingested about 250 ml of the contaminated milk each day for a year.