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with RLS. In our study, we excluded all patients with a serum ferritin level of less than 15 μg per liter (see the protocol, available at NEJM.org).

Unfortunately, intravenous iron treatments have not been adequately evaluated to establish them as a standard treatment for RLS. Data from a small controlled positive study of ferric carboxymaltose³ and from two negative studies of iron sucrose^{4,5} are available. The differences here may reflect effects of different formulations of iron or random variation around a small treatment benefit. Data are lacking from controlled clinical studies of intravenous iron treatment for RLS to support the recommendation of this approach.

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Since publication of his article, the author reports no further potential conflict of interest.

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Multiple Phenotypes in Phosphoglucomutase 1 Deficiency

TO THE EDITOR: Tegtmeier et al. (Feb. 6 issue)¹ state that patients with phosphoglucomutase 1 deficiency are susceptible to malignant hyperthermia along with multiple other clinical manifestations, including myopathy, rhabdomyolysis, and dilated cardiomyopathy. Might the authors clarify their diagnostic criterion for malignant hyperthermia in the two patients in whom “severe rhabdomyolysis” developed after general anesthesia was administered? Pronounced rhabdomyolysis distinct from malignant hyperthermia may develop in patients with myopathies such as Duchenne’s muscular dystrophy when they are exposed to volatile anesthetic gases.

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1. Tegtmeier LC, Rust S, van Scherpenzeel M, et al. Multiple phenotypes in phosphoglucomutase 1 deficiency. *N Engl J Med* 2014;370:533-42.

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formed at 1.5 years of age. Halothane was used for anesthesia. Because unexplained acidosis with an increased partial pressure of carbon dioxide, a base excess of -9 mmol per liter, and fever developed in the patient, we assessed the plasma creatine kinase level, which increased from 700 U per liter 2 hours after surgery to more than 10,000 U per liter a few hours later. The serum myoglobin level was 178 μg per liter. The clinical grading scale to predict malignant hyperthermia (on a scale from 0 to 88, with scores higher than 50 indicating malignant hyperthermia) showed a raw score of 68 and the highest rank of 6,¹ indicating an almost certain likelihood of malignant hyperthermia. When the patient was 4 years of age and again at 18 years of age, “trigger-free” anesthesia (without drugs known to induce malignant hyperthermia) with propofol and remifentanyl used together led to minor increases in the creatine kinase level without fever. No depolarizing muscle relaxants had been used. We are aware of the ongoing discussion regarding whether or not rhabdomyolysis in disorders such as Duchenne’s muscular dystrophy is similar to malignant hyperthermia.^{2,3}

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THE AUTHORS REPLY: In phosphoglucomutase 1 deficiency, general anesthesia has been shown to induce rhabdomyolysis and high fever. In our first patient, surgery for cleft palate was per-

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Since publication of their article, the authors report no further potential conflict of interest.

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Fundamentals of Lung Auscultation

TO THE EDITOR: We wish to complain (*râler* in French slang)¹ that Bohadana and colleagues (Feb. 20 issue)² have breathed life into the term “rhonchus,” which is as redundant as terms such as “phthisis.” Robertson and Coope³ suggested that lung sounds be divided primarily into continuous sounds, which they labeled wheezes, and interrupted (discontinuous) sounds, which they called crackles. Forgacs⁴ emphasized that wheezes are musical and crackles are not. The binary distinction is easy to teach and to use in practice. Bohadana et al. describe the rhonchus as a variant of the wheeze, indicate that its frequency is approximately 150 Hz, and liken it to snoring. Earlier distinctions between mucous, sibilant, and sonorous rhonchi⁵ are ignored; the frequency of wheeze — 100 to almost 5000 Hz — encompasses 150 Hz; since snores are inspiratory and rhonchi are usually expiratory, this might be misleading. It is time to dispense with “rhonchus” as well as with “rale” (which means “death rattle”).¹

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TO THE EDITOR: The review of lung auscultation has two easily overlooked lessons that are par-

ticularly important in the examination of children.¹ First, no noise is pathognomonic of a particular disease (or anatomical site). For example, stridor is not diagnostic of laryngeal obstruction. Obstruction at other sites can mimic the sound. Second, the “musical” sounds of airway obstruction — stridor, wheeze, stertor, and snore — form part of a continuous sound spectrum and cannot be distinguished from one another by means of any objective criterion. Their frequency spectra overlap, and their waveforms lack unique features. What matters most in children is not whether a noise can be called snoring, stridor, or wheeze but whether the sound is inspiratory or expiratory.

Airway obstruction above the chest is worst and noise is loudest during inspiration. By contrast, intrathoracic airway obstruction is worst and noise is loudest during expiration. The site of airway obstruction in children with noisy breathing can be pinpointed by answering only two questions — without having to put a name to any sound. First, is airway obstruction worse during inspiration or expiration? Depending on the answer to the first question, the second question is either “Does obstruction occur when the child is breathing through the mouth or crying?” or “Is bilateral air trapping present?” The figure in the Supplementary Appendix, available with the full text of this letter at NEJM.org, shows an algorithm of the diagnostic process.

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