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## LETTERS

### Yet another steal syndrome

George John

**TO THE EDITOR:** The “curse of Kelvin” casts its shadow over most medical research.<sup>1</sup> This curse means that one’s insight, unless clothed with numbers, is unlikely to be widely accepted. This phenomenon ensures that matters that are obvious to children (like the Emperor’s new clothes) can be published only as a “Point of View” or a “Letter to the Editor”, instead of a scientific paper. One such observation concerns a “steal” phenomenon found in high-technology medical domains in developing countries. This refers not to the drain of skilled workforce away from developing to developed countries, but rather the phenomenon observed in intensive care units which have a nurse to patient ratio less than 1:1.

This steal phenomenon can be stated thus:

In an intensive care unit with a nurse to patient ratio < 1:1, the admission of patients with a very poor prognosis is likely to shunt care away from those patients who are likely to benefit from intensive nursing care, to those in whom it would probably make no difference.

The phenomenon is intuitively obvious. Consider another ratio well known to intensivists — the ventilation–perfusion (V/Q) ratio. The nursing personnel are represented by the numerator, and the patients admitted to the ICU by the denominator (the N:P ratio). An ideal ratio in an ICU would be 1:1. A ratio with  $N > P$  will cause wasted nursing care (analogous to dead space), while a ratio  $< 1:1$  will result in a “shunt” effect.

Is this a quantifiable observation? Probably yes. Is it necessary to quantify it, before realising that it is true? Probably not — it is quite obvious to those of us who work in these areas.

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1. Wears RL. Patient satisfaction and the curse of Kelvin. *Ann Emerg Med* 2005; 46: 11-12. □

### Intentional strychnine use and overdose – an entity of the past?

Jelena Radosavljevic, William S Jeffries and John V Peter

**TO THE EDITOR:** We report a patient who developed features of strychnine poisoning following intentional use. A 68-year former cattle-station worker with ischaemic heart disease, diabetes mellitus, mild renal impairment, peripheral

vascular disease and atrial fibrillation was admitted to hospital for below-knee amputation. The patient was noted to be irritable with depressed mood. On the day of surgery, a “code blue” was called as he displayed twitching move-

ments of the limbs and reduced respiratory effort. Initial assessment by the medical emergency team revealed the patient to be conscious but incoherent, with a Glasgow Coma Score of 10. The patient advised the attending medical officer that he had consumed strychnine.

Abnormal twitching and fitting involving the arms and legs and intermittent clenching of the teeth was observed, with clinical features of generalised hyper-reflexia, hypertonia and extensor plantar responses. Over the next 30 minutes, his condition deteriorated rapidly with generalised tonic-clonic seizures, poorly responsive to intravenous clonazepam and midazolam. His respiratory status worsened, with hypoventilation and oxygen desaturation, necessitating intubation and transfer to the intensive care unit.

An unmarked packet of pink powder in the patient's shirt pocket tested positive for strychnine. No symptoms of strychnine poisoning developed in the attending staff. Although the patient's family advised that he had been taking strychnine for years as a "bush cure" and stimulant, the nature or source of the strychnine could not be ascertained. The course in the ICU was complicated by anuric renal failure, which resolved with supportive therapy. His condition improved gradually, and he was extubated 10 days later.

Strychnine, a naturally occurring alkaloid and popular rodenticide for centuries, is derived from the seeds of the tree *Strychnos nux-vomica* and was a common agent of poisoning in the late 19th and early 20th centuries.<sup>1</sup> With the cancellation of registration of predator-control agents containing strychnine in 1972,<sup>2</sup> intentional poisoning with strychnine has become rare in Australia, although sporadic cases have been reported from other countries.<sup>3,4</sup> A recent Australian report of tampering and contamination of paracetamol preparations with strychnine for the purpose of extortion<sup>5</sup> also suggests that we have not seen the last of strychnine use.

Strychnine typically produces spinal seizures due to inhibition of glycine at the level of the spinal cord. Stiffness of the facial muscles may cause risus sardonicus. This is followed by uncontrolled muscle spasms and movements, progressing to sustained tonic-clonic seizures without loss of consciousness. In addition, patients have an increased startle reflex, and convulsions may be precipitated by bright lights, sudden movements and, importantly, medical procedures. Sustained muscle contractions often lead to rhabdomyolysis and renal failure. Cardiorespiratory arrest and death may ensue. Treatment is primarily supportive and aimed at control of convulsions with high doses of benzodiazepines and muscle relaxants, respiratory support for persistent spasms, and adequate hydration to prevent renal failure.

The clinical features of strychnine poisoning may be virtually indistinguishable from tetanus, which may pose a

diagnostic difficulty, especially in countries where tetanus continues to be a major health problem. Other causes of hyper-reflexia, hypertonia, hyperthermia or convulsions may need to be considered in the differential diagnosis. These include central nervous system infection, lethal catatonia, thyrotoxic storm, phaeochromocytoma, drug-induced dystonia and neuroleptic malignant syndrome.<sup>6</sup>

Therapeutically, the benefit of strychnine is restricted to the treatment of non-ketotic hyperglycaemia (an inborn error of glycine metabolism), but strychnine is still a constituent of some multi-ingredient preparations (eg, some "tonics") in Austria, France and Italy.<sup>7</sup>

Modern street drugs (with names such as back breakers, homicide, red rock opium, red rum, red stuff and spike) may contain strychnine.<sup>8</sup> Recreational use of strychnine is described in popular songs, such as "Strychnine" by The Sonics, which has the lyrics "Some folks like wine/But I like the taste of straight strychnine" (Etiquette LPS 024, 1965). Data on chronic strychnine usage are limited, and chronic poisoning with strychnine may go unrecognised.

Although strychnine poisoning is uncommon, a high index of suspicion and prompt treatment are necessary for a good outcome. The diagnosis, although clinical, can be supported by estimation of drug levels.<sup>4</sup> Other causes of rigidity and convulsions that mimic strychnine poisoning may pose diagnostic challenges and result in misdiagnosis. As pharmacological and rodenticidal use is restricted, strychnine exposure may in future occur primarily through recreational and illegal use.

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1. Felter HW, Lloyd JU. Strychninae sulphas (U.S.P.) – strychnine sulphate. King's American dispensatory. Available at: [http://www.henriettesherbal.com/eclectic/kings/strychnos-nux\\_strych-sul.html](http://www.henriettesherbal.com/eclectic/kings/strychnos-nux_strych-sul.html) (accessed Mar 2006).
2. Australian Pesticides and Veterinary Medicines Authority. The reconsideration of products containing sodium fluoroacetate (1080) and their associated labels. Preliminary review findings. Canberra: APVMA, May 2005: 45.
3. Lindsey T, O'Hara J, Irvine R, Kerrigan S. Strychnine overdose following ingestion of gopher bait. *J Anal Toxicol* 2004; 28: 135-7.
4. Wood D, Webster E, Martinez D, et al. Case report: survival after deliberate strychnine self-poisoning, with toxicokinetic data. *Crit Care* 2002; 6: 456-9.
5. Newgreen DB. Review of non-prescription analgesics. An update. Canberra: Therapeutic Goods Administration Medicines Evaluation Committee, 2003: 49.
6. Hadad E, Weinbroum AA, Ben-Abraham R. Drug induced hyperthermia and muscle rigidity: a practical approach. *Eur J Emerg Med* 2003; 10: 149-54.
7. Supplementary drugs and other substances. In: Sweetman SC, editor. Martindale. The complete drug reference. 34th ed. London: Pharmaceutical Press, 2005: 1750.
8. Office of National Drug Control Policy. Drug facts. Street terms: drugs and the drug trade. Rockville, Md, USA: ONDCP. Available at: <http://www.whitehousedrugpolicy.gov/streetterms> (accessed Mar 2006). □

## Not every picture is worth a thousand words

Paul Frost

**TO THE EDITOR:** The medical illustrator who provided the picture of an adult about to receive electrical therapy on the cover of the new-look *Journal* (Volume 8, Number 2, June 2006) would have done well to read the Australian Resuscitation Council's guidance highlighted therein.<sup>1</sup> *Guideline 11.5: Electrical therapy for adult advanced life support* recommends that one paddle should be placed on the right parasternal area over the second intercostal space, and that conductive gel pads should be used for maximum electrical

contact (<http://www.resus.org.au>). In the cover picture, both of these recommendations are flouted. One would worry about the outcome of any patient similarly treated.

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1. Morley PT, Walker T. Australian Resuscitation Council: adult advanced life support (ALS) guidelines. *Crit Care Resusc* 2006; 8: 129-131. □

## History of mouth-to-mouth rescue breathing: some matters concerning John and Anthony Fothergill

Ronald V Trubuhovich

**TO THE EDITOR:** My article in the June issue of the *Journal* on the history of mouth-to-mouth rescue breathing<sup>1</sup> included both John and Anthony Fothergill in the list of 18th century promoters of resuscitation who "appear" to be Scotsmen (*page 170*).

This was based on their both attending the Edinburgh medical school and both being known as Northerners — but obviously they were not northern enough. After the article went to press, I learned that John Fothergill was a Yorkshireman, born at Carr End. He studied medicine at Edinburgh because, as a Dissenter (he was a Quaker), he would be refused admission to universities such as Oxford.

I tried for a month in vain to locate Anthony Fothergill's birthplace. However, helpful librarians at the Philson Library, University of Auckland, and then the E & M Davis Library, Auckland, both directed me to a carefully researched, brief (two-page) biography by Christopher C Booth in the *Oxford dictionary of national biography*.<sup>2</sup> The article supplied further information concerning four items I had included about Anthony Fothergill. These now need correction:

- Anthony Fothergill was born in Westmorland (now part of Cumbria), at Murthwaite, Ravenstonedale.
- His date of birth is unlikely to be 1732/3, the only date I have previously seen written (at multiple sites), because, although Booth supplies no actual birth date, he states "bap. 1737". The custom of those times (although not

necessarily with Dissenters) was for baptism to take place soon after birth.

- His year of death is often written as 1803, which I followed, and occasionally as 1813. Booth says of Fothergill "he died at St George's Place, London, on 11 May 1813". Unequivocally so, as he had returned from the United States to England because of the recurrence of war in 1812!
- Booth states that Dr John Fothergill was "no relation", whereas I, taking Elizabeth Thomson's lead, referred to Anthony as John's "distant relation". If Booth is correct, as is likely, I join the ranks of those demonstrating how errors become perpetuated.

Finally, the impressive *Oxford dictionary of national biography* from the Oxford University Press is a stupendous work, claiming 55 000 entries. It is available online to subscribing institutions, so is obviously a very valuable resource for writers. But, if a text is wanted in hand, then that runs to 60 volumes!

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1. Trubuhovich RV. History of mouth-to-mouth rescue breathing. Part 2: the 18th century. *Crit Care Resusc* 2006; 8: 157-71.
2. Oxford dictionary of national biography. Oxford, UK: Oxford University Press. Available at: <http://www.oxforddnb.com/> (accessed Jun 2006) □