- 16 El-Mougi M, El-Akkad N, Hendawi A, Hassan M, Amer A, Fontaine O, Pierce NF. Is a low-osmolality ORS solution more efficacious than standard WHO ORS solution? *J Pediatr Gastroenterol Nutr* 1994;19(1):83-6.
- 17 El-Mougi M, Hendawi A, Koura H, Hegazi E, Fontaine O, Pierce NF. Efficacy of standard glucose-based and reduced osmolality maltodextrin-based oral rehydration solution: effect of sugar malabsorption. *Bull World Health Organ* 1996;74(5):471-7.
- 18 Santosham M, Fayad I, Zikri MA, Hussein A, Amponsah A, Duggan C, et al. A double-blind clinical trial comparing World Health Organization oral rehydration solution with a reduced osmolality solution containing equal amounts of sodium and glucose. *J Pediatr* 1996;128(1):45-51.
- 19 Bhargava SK, Sachdev HPS, Das Gupta B, Daral TS, Singh HP, Mohan M. Oral rehydration of neonates and young infants with dehydration diarrhea: comparison of low and standard sodium content in oral rehydration solutions. *J Pediatr Gastroenterol Nutr* 1984;3(4):500-5.
- 20 Dutta P, Mitra U, Dutta S, Manna B, Chatterjee MK, De A, et al. Hypo-osmolar oral rehydration salts solution in dehydrating persistent diarrhoea in children: double-blind, randomized, controlled clinical trial. *Acta Paediatr* 2000;89:411-6.
- 21 Alam S, Afzal K, Maheshwari M, Shukla I. Controlled trial of hypo-osmolar versus World Health Organization oral rehydration solution. *Indian Pediatr* 2000;37:952-9.
- 22 Moreno-Sanchez H, Velasquez-Jones L, Becerra FC, Faure A, Maulen I, de Leon M, et al. A comparative study on two oral rehydration solutions (ORS) containing 60 or 90 mmol/L of sodium and of different osmolalities. *Bol Med Hosp Infant Mex* 1990;47(9):630-5.
- 23 Santosham M, Daum RS, Dillman L, Rodriguez JL, Luque S, Russel R, et al. Oral rehydration therapy of infantile diarrhea. A controlled study of well-nourished children hospitalized in the United States and Panama. *New Engl J Med* 1982;306(18):1070-6.
- 24 World Health Organization. International study group on reduced-osmolality ORS solutions. Multicentre evaluation of reduced-osmolality oral rehydration salts solution. *Lancet* 1995;345:282-5.
- 25 Martinez-Pantaleon O, Faure-Vilchis A, Gomez-Najera RI, Hernandez-Lopez M, Velasquez-Jones L. Comparative study of oral rehydration solutions containing either 90 or 60 millimoles of sodium per liter. *Bol Med Hosp Infant Mex* 1998;45(12):817-22.
- 26 Velasquez-Jones L, Becerra FC, Faure A, de Leon M, Moreno H, Maulen I, et al. Clinical experience in Mexico with a new oral rehydration solution with lower osmolality. *Clin Ther* 1990;2(suppl A):95-103.
- 27 Fontaine O, Gore S, Pierce NF. Rice-based oral rehydration solution for treating diarrhoea. *Cochrane Database Syst Rev* 2000;(2):CD001264.
- 28 Faruque ASG, Mahalanabis D, Hamadani JD, Zetterstrom R. Reduced osmolality oral rehydration salt in cholera. *Scand J Infect Dis* 1996;28:87-90.
- 29 Alam NH, Majumder RN, Fuchs GJ, CHOICE Study Group. Efficacy and safety of oral rehydration solution with reduced osmolality in adults with cholera: a randomised double-blinded clinical trial. *Lancet* 1999;354:296-9.

(Accepted 27 June 2001)

Drug points

Neonatal convulsions after withdrawal of baclofen

B D M Ratnayaka, H Dhaliwal, S Watkin, Department of Neonatal Medicine, City Hospital, Nottingham NG5 1PB

Baclofen is a skeletal muscle relaxant used for the relief of chronic severe spasticity resulting from disorders such as multiple sclerosis or traumatic injury to the spinal cord. We report convulsions in a 7 day old girl who had been exposed to baclofen during intrauterine life.

A paraplegic mother had been taking baclofen 20 mg four times daily (Lioresal, Novartis, Surrey), oxybutanin 3 mg three times daily, and trimethoprim 100 mg daily, which she continued throughout her pregnancy. The pregnancy was uneventful, but the baby was delivered by ventouse extraction owing to fetal tachycardia. The Apgar score was 10 at one and five minutes (cord pH: arterial 7.33, venous 7.3).

Seven days later the baby was admitted with generalised convulsions. In retrospect the mother had noticed abnormal movements from the second day after birth. Investigations included a full septic screen for bacteriology and virology; a full blood count; serum electrolytes; liver function tests; a metabolic screen of blood, urine, and cerebrospinal fluid; urine for toxicology; and cranial ultrasonography. All gave negative results. The convulsions did not respond to phenobarbitone, phenytoin, clonazepam, lignocaine, or pyridoxine, which were tried according to our hospital's guidelines for the management of neonatal seizures. The baby received broad spectrum antibiotics until the cultures gave negative results. Electroencephalography on day 11 showed prolonged episodes of epileptic activity.

We thought that the convulsions could be due to withdrawal of baclofen. Baclofen, 1 mg/kg daily in four divided doses, was started. Thirty minutes after the first dose the convulsions stopped. Baclofen was withdrawn slowly over the next two weeks. Magnetic resonance imaging of the brain on day 17 suggested a short hypoxic ischaemic insult during the perinatal period.

Because the baby was in good condition at birth and because the convulsions were controlled within 30 minutes of starting baclofen, we concluded that the convulsions had been caused by its withdrawal. The

change shown by the magnetic resonance image may have been secondary to the convulsions.

In adults the half life of baclofen is 2-6 hours (mean 3.5 hours). A previous report of baclofen overdose showed a secondary increase in baclofen concentrations into the therapeutic range after an initial decrease, probably due to its slow release from the central nervous system and lipid stores.⁵ This may explain the delay in presentation of our patient.

Convulsions after withdrawal of baclofen are well reported in adults.¹⁻⁴ Convulsions after withdrawal of exposure to baclofen during intrauterine life have not been reported; this is the first such report to the Committee on Safety of Medicines.

Competing interests: None declared.

- 1 Barker I, Grant IS. Convulsions after abrupt withdrawal of baclofen. *Lancet* 1982;2:556-7.
- 2 Hyser CL, Drake ME. Status epilepticus after baclofen withdrawal. *J Natl Med Assoc* 1984;76:533-8.
- 3 Koller M, Lewis AA. Prolonged seizure activity after baclofen withdrawal. *Neurology* 1992;42:697-8.
- 4 Terence CF, Formm GH. Complications of baclofen withdrawal. *Arch Neurol* 1981;38:588-9.
- 5 Lipscomb DJ, Meredith TJ. Baclofen overdose. *Postgrad Med J* 1980;56:108-9.

Endpiece Pleasures

The three most dangerous are the pleasures of the table, the hunting after honours, and the possession of riches. These desires increase with the age of men.

J Cornaro (1467-1566),
Discorsi della vita sopra, Venice, 1620.

Translated by W Jones,
Some methods of obtaining a long and healthy life.
Edinburgh: A Donaldson, 1768:59-60.

Submitted by Jeremy Hugh Baron,
honorary professorial lecturer, New York