Cost of postal specimen kits (towards end of 1975 and exclusive of VAT)

Postal kit	Cost per 1000 kits (£)		
	Kit	Postage	Total
Dip spoon	100	230	330
Dip slide	92.50	230	322.50
28 ml boric acid	25	230	255
7 ml boric acid	14	170	184

the laboratory in the same envelope. Examination of over 300 of these double specimens showed no difference in content of albumin, sugar, red and white blood cells, casts, and bacteria. The 7 ml container, with 0.125 ± 0.01 g powdered boric acid, therefore replaced the 28 ml container. Our staff prepare all the postal kits, measuring the powdered boric acid in a special "thimble." Comparison of our "home-made" kits with commercially available dip slide and dip spoon kits for gauging bacterial content (table) shows our 7 ml boric acid kit to be the most economical. Since the laboratory handles some 25 000 boric acid urine postal specimens a year the substitution of the 7 ml container for the 28 ml container achieves a yearly saving of £1775. If the 7 ml kit had been used to replace dip slide or dip spoon kits the yearly saving would have been £3462 or £3650.

The introduction in our laboratory of the economical urine culture procedure using a calibrated 1 µl loop to inoculate each of the 50 segments of a 10 in (25.4 cm) square glass and metal dish filled with 200 ml of appropriate medium³ brought further savings in sterile disposable plastic Petri dishes and media. For every 1000 specimens so examined the costs of Petri dishes and media were decreased by £15 and £11 respectively. Given a yearly intake of 25 000 postal urine specimens the total saving is £650.

These economies achieve yearly savings of £450 on pregnancy tests kits, at least £1775 on urine outfits, and £650 on Petri dishes and media—a total of £2875 a year.

Comment

The need for more intensive and frugal use of existing resources within the NHS has been emphasised.⁴ The economies described here may be made without detriment to patient care. The £2875 saved is but a drop in the ocean of NHS expenditure, but it does indicate that economies are possible if day-to-day running costs are carefully watched.

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Labour on lithium

Pharmacological nihilism is the safest approach to pregnancy but poses a problem in the prophylaxis or treatment of chronic maternal illness such as manic depressive psychosis. The current view is that conception while on lithium is not an indication for therapeutic termination of pregnancy but there exists conflicting evidence for teratogenicity^{1 2} and little information about the transplacental pharmacokinetics of lithium in humans. We report the detailed study of a single pregnancy throughout the second and third trimesters of which oral lithium carbonate treatment was maintained.

Case report

A 24-year-old unmarried girl was admitted to the MRC Brain Metabolism Unit in the hypomanic phase of a manic-depressive psychosis. On discovering pregnancy we deferred specific chemotherapeutic plans for the first trimester

of pregnancy for fear of teratogenicity. When necessary, sedation was achieved with oral sodium amylobarbitone. In the estimated 11th week of pregnancy lithium carbonate treatment was started and her psychiatric condition steadily improved. After discussion with the medical staff, the patient, by then in a rational state of mind, decided to proceed with the pregnancy and she was discharged to outpatient care. Pregnancy was uncomplicated and a healthy baby (3850 g) was delivered with Haig-Ferguson forceps 13 hours after the onset of labour.

Concentrations of lithium detected in maternal and neonatal serum, amniotic fluid (obtained six hours before delivery) and umbilical cord blood.

Conversion: SI to traditional units: Lithium: 1 mmol/l = 1 mEq/l.

The lithium concentration in umbilical cord blood closely reflected the maternal serum concentration, but that found in amniotic fluid was higher than any other value (see fig). Serum concentrations in the infant remained static over the first three days despite good oral fluid intake and thereafter fell steadily to zero by the 13th day, giving an approximate serum half life for lithium in the neonate of 96 hours. Serum electrolytes, calcium, phosphate, and routine haematological values were all normal. Thyroxine levels in umbilical cord blood and in neonatal blood on the first and fourth days were normal, as were neonatal thyrotrophin levels at day 4. Femoral epiphyseal x-ray films, Echo encephalogram, and electrocardiogram performed on day 4 were also normal. Minor vomiting and irritability were observed from the fourth to the seventh days.

Comment

The close similarity of lithium concentrations in maternal, umbilical, and neonatal serum confirms that no placental barrier exists to the free diffusion of lithium ions.³ The high lithium concentrations in amniotic fluid probably reflect fetal urinary excretion. Since lithium inhibits adenylate cyclase, it was interesting to find no evidence of thyroid or parathyroid dysfunction in the newborn infant. The nursing staff thought this baby abnormally irritable while the serum lithium concentration was rapidly falling, and it is tempting to speculate that this behavioural abnormality resulted from withdrawing an agent to which the baby had been exposed for most of its intrauterine life.

Further pregnancies must be recorded in detail before any general statement may be made about the safety of lithium in pregnancy. Transmembrane electrolyte distribution in fetal mammalian brain tissue differs from that of the adult,⁴ thus the effect of lithium upon important ionic distributions in the developing brain should be further assessed.

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