Health Care Research Unit, Southampton General Hospital NHS Trust, Southampton SO16 6YD
J Lorraine Low *medical statistician*
Correspondence to: C D Deakin cddeakin@hotmail.com

palpable when a reading was taken because a sterile operating field impaired access to the patients. The radial pulse always disappeared before the femoral pulse, which always disappeared before the carotid pulse. The data were split into four subgroups: radial, femoral, and carotid pulses present (group 1), femoral and carotid pulses only (group 2), carotid pulse only (group 3), and radial, femoral, and carotid pulses absent (group 4).

The figure shows the distribution of the systolic blood pressure in each of these groups. The reference lines in the figure at 80 mm Hg, 70 mm Hg, and 60 mm Hg represent the values that, according to the advanced trauma life support guidelines, the systolic blood pressure is expected to exceed for groups 1, 2, and 3 respectively.

In group 1, 10/12 (83%) subjects had a systolic blood pressure <80 mm Hg (mean 72.5 mm Hg (reference range 55.3-89.7 mm Hg)). In group 2, 10/12 (83%) subjects had a systolic blood pressure <70 mm Hg (mean 66.4 mm Hg (50.9-81.9 mm Hg)). In group 3, none of the four patients had a systolic blood pressure >60 mm Hg as predicted by the advanced trauma life support guidelines. And in group 4, 2/3 patients had a systolic blood pressure <60 mm Hg as predicted by the advanced trauma life support guidelines.

Comment

The advanced trauma life support guidelines for assessing systolic blood pressure are inaccurate and generally overestimate the patient's systolic blood pressure and therefore underestimate the degree of hypovolaemia. The minimum blood pressure predicted by the guidelines was exceeded in only four of 20 patients. The mean blood pressure and reference range obtained for each group indicate that the guidelines overestimate the systolic blood pressure associated with the number of pulses present. This study therefore does not support the teaching of the advanced trauma life support course on the relation between palpable pulses and systolic blood pressure.

Contributors: Data collection was carried out by CDD. JLL did the statistical analysis. CDD and JLL both wrote the report. CDD is the guarantor.
Funding: None.
Competing interests: None declared.

1 Collicott PE. *Advanced trauma life support course for physicians*. Chicago: American College of Surgeons, 1985.
2 Poulton TJ. ATLS paradigm fails. *Ann Emerg Med* 1988;17:107.

(Accepted 5 April 2000)

Population based, prospective study of the care of women with epilepsy in pregnancy

Susan D Fairgrieve, Margaret Jackson, Patricia Jonas, David Walshaw, Kathleen White, Tara L Montgomery, John Burn, Sally A Lynch

Department of Human Genetics, Royal Victoria Infirmary, Newcastle upon Tyne NE2 4AA
Susan D Fairgrieve *genetic nurse specialist*
Patricia Jonas *research midwife*
Tara L Montgomery *specialist registrar in clinical genetics*
John Burn *professor of clinical genetics*
Sally A Lynch *consultant clinical geneticist*
Department of Neurology, Royal Victoria Infirmary, Newcastle upon Tyne NE1 4LP
Margaret Jackson *consultant neurologist*
Kathleen White *specialist registrar in neurology*

continued over

BMJ 2000;321:674–5

This prospective, population based study in the former Northern health region was designed to establish the proportion of pregnant women with a history of epilepsy; doctors supervising their care; effectiveness of preconceptional counselling and control of epilepsy; and use of medication and pregnancy outcomes.

Subjects, methods, and results

The project had approval from regional ethics committees. Pregnant women with epilepsy were recruited to the study, predominantly by community midwives. Women who consented were interviewed by using a standard questionnaire. Hospital notes were reviewed after the women had given birth. General practice and hospital notes were checked in one area to confirm the women's response regarding preconceptional advice. Between 1 January 1997 and 31 December 1998, 400 notifications of pregnancies to women with epilepsy were received (the total number of livebirths, stillbirths, and medical terminations for this period was 65 478, giving a proportion of all pregnancies to women with epilepsy of 6.1/1000).

Three hundred women were interviewed, 60 did not consent to interview, contact was unsuccessful for 36, and 4 were notified retrospectively. Epilepsy management was undertaken by general practitioners in 182/300 (61%) women; 214/300 (71%) reported ongoing seizures; and 53/252 (21%) women taking antiepileptic drugs reported no seizures for >2 years. A history of epilepsy was reported by 48 women who no longer took antiepileptic drugs. Of the remaining 252, 210 (83.3%) were on monotherapy, most often carbamazepine (52%) and sodium valproate (35%). The diagnosis of epilepsy was questionable in 16/300 (5%) women. Incomplete compliance with medication was reported by 157/252 (62.3%) women.

Only 113/300 (38%) women recalled receiving preconceptional counselling. However, review of the notes of 25 women who denied having received advice showed that 8 (32%) had been counselled. Less than 50% (88/199) planned their pregnancies and 27/111 reported oral contraceptive failure. Only 32 (11%) took folate appropriately.

Of the 359/400 known pregnancy outcomes there were 330 live births (three sets of twins); two medical terminations, two stillbirths, 22 miscarriages, and five terminations.

The obstetric complication rate and mode of delivery were similar to that of the background population

Malformations seen in relation to use of drugs

No of cases (n=20)	Malformation	Drug (dosage (mg/day))
2	Spina bifida	Valproic acid (1200); carbamazepine with valproic acid (not known)
1	Phocomelia	Valproic acid (1500)
1	Caudal regression*	Carbamazepine (not known)
1	Cleft palate	Valproic acid (2000)
1	Rib anomalies	Valproic acid (1500), also lamotrigine (100)
1	Thick mitral valve	Carbamazepine (500)
4	Hypospadias	Valproic acid (1000); valproic acid (400); valproic acid (not known); no drugs
1	Hypoplastic left heart	Carbamazepine (400)
1	Coarctation	Carbamazepine (1200)
1	Pulmonary stenosis	Valproic acid (600)
1	Left duplex kidney	No drugs
1	Cleft lip	No drugs
1	Microcephaly	Valproic acid and phenobarbitone (not known)
1	Trisomy 21	Valproic acid (1000)
1	Lissencephaly†	Carbamazepine (200)
1	Right toe syndactyly	No drugs

*Mother has insulin dependent diabetes mellitus in addition to epilepsy.
† This child, a boy, has X-linked lissencephaly, and his mother has subcortical band heterotopia on MRI manifesting clinically as epilepsy.

except for an excess of premature deliveries (8.2%).[1] One woman drowned in the bath while pregnant and another died five months post partum after a seizure, a death rate of 1 in 200. (No abnormal outcomes from the remaining 41/400 pregnancies were notified to the regional maternity survey office.) Vitamin K was given as recommended to 87/244 (36%) babies. Malformations were more common in babies born to mothers with epilepsy (20/400 (5%; 95% confidence interval, 3.1% to 7.6%) than in the background population (2.4%; 2.32% to 2.46%; odds ratio 2.15 (1.30 to 3.37), P = 0.0037) (table).[2] Four affected infants were among 48 born to women not taking drugs (8%, P = 0.055). The malformation rate in babies born to treated women was 16/352 (4.55%, P = 0.024).[2]

Comment

The study shows that guidelines in the literature for the management of women with epilepsy are not being followed.[3 4] Most women with epilepsy in our region are supervised by their general practitioner, control of seizures is poor, compliance with medication is variable, and methods of preconceptional counselling are ineffective. Less than 50% of these pregnancies are planned, partly because of oral contraceptive failure. The malformation rate in their infants is double that of the background population, and not all malformations are attributable to antiepileptic drugs.[2] Most published guidelines are targeted at neurologists,[3 4] thereby failing to improve management of women under the care of their general practitioner. Considerable expansion of epilepsy services in primary and secondary care is needed if the guideline recommendations[3 4] are to be achieved.[5]

Contributors: SDF, MJ, and SAL were the lead investigators and wrote the paper. PJ, KW, TLM, and JB contributed to the design of the study and the collection of data and commented on drafts of the paper. DW carried out statistical analysis and commented on drafts of the paper. SDF, MJ, and SAL will act as guarantors for the paper.

Funding: SDF and PJ were funded for two years by Wellbeing and for one year by the Purchasers Clinical Auditors Group (of health authorities in the former Northern region).

Competing interests: MJ has given educational lectures for Janssen Cilag, GlaxoWellcome, and Sanofi Winthrop. SDF gave an educational lecture for Janssen Cilag. JB has given four lectures for GlaxoWellcome. GlaxoWellcome and Parke-Davies have funded MJ to attend four epilepsy conferences in four years. MJ has contributed to a clinical trial for Novonordisk. GlaxoWellcome, Sanofi Winthrop, and Parke-Davies have contributed £26 500 for equipment and a salary for a nurse to set up an epilepsy service coordinated by MJ. Sanofi Winthrop has contributed £2100 to pay for equipment for a related study coordinated by SAL. MJ has contributed to one advisory panel for Novartis. GlaxoWellcome was a donor, through its charitable arm, to the matching funds for the millennium landmark, Centre for Life, which includes the Institute of Human Genetics.

1 Regional Maternity Survey Office. The Northern Perinatal Mortality Survey Annual Report—1995. Newcastle upon Tyne: Regional Maternity Survey Office.
2 Regional Maternity Survey Office. Northern Regional Congenital Abnormality Survey (NorCAS) report 1991-1995. Newcastle upon Tyne: Regional Maternity Survey Office.
3 Wiebe S. Managing women with epilepsy. *BMJ* 2000;320:3-4.
4 Wallace H, Shorvon SD, Hopkins A, O'Donoghue M. *Adults with poorly controlled epilepsy*. London: Royal College of Physicians, 1997.
5 Ridsdale L, Robins D, Cryer C, Williams H. Feasibility and effects of nurse run clinics for patients with epilepsy in general practice: randomised controlled trial. *BMJ* 1997;314:120-2.

(Accepted 28 March 2000)

Corrections and clarifications

Increase in high risk sexual behaviour among homosexual men, London 1996-8: cross sectional, questionnaire study

Some readers might have been misled by the first sentence in this short report by Julie P Dodds and colleagues (3 June, pp 1510-1). The first sentence should have read: "Homosexual men in the United Kingdom continue to become infected with HIV [not "The incidence of HIV infection among homosexual men is increasing"] despite efforts to reduce high risk sexual behaviour."

Fillers

In the filler "To coin a phrase" by Anthony Alment (29 July, p 272) the first sentence suggests that it was in the summer of 1929 that Alexander Fleming first noticed penicillin. In fact it was the summer of 1928.

A transcription error led to the wrong date being published in the reference at the end the filler "A patient who changed my practice: The internet and a 'small miracle'" by Di Jelly (15 July, p 165). The article cited was published in 1996, not 1966.

Department of Statistics, University of Newcastle upon Tyne, Newcastle upon Tyne NE1 7RU
David Walshaw *lecturer in medical statistics*
Correspondence to: S Fairgrieve JohnBurn@newcastle.ac.uk