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Correspondence

Prophylactic ethamsylate for periventricular haemorrhage

Sir,

Drs Cooke and Morgan have shown in a double blind trial that ethamsylate seemed to reduce the incidence of periventricular haemorrhage.[1] Although this is of great interest, no confirmation of these results is available so far. Yet Delandale Laboratories are already advertising ethamsylate as the drug to prevent periventricular haemorrhage in the newborn infant. In the past similar effects, claimed for phenobarbitone, were not subsequently substantiated.[2 3]

In this journal, the same authors[4] tried to analyse the neurodevelopmental outcome in relation to treatment with ethamsylate. The cases studied were collected in three parts over a two year period—the first part included infants in a randomised trial, the second infants not treated with the drug, and the third all infants treated with ethamsylate. Two objections can be raised to any conclusions drawn from their analyses:

(1) The analysis is not unbiased—those carrying out the neurological assessment must have known whether the infant was likely to have the drug by reference to their date of birth.

(2) Neonatal practices change rapidly and there is more experience, probably for the better, with these small infants. The type of obstetric referral can vary from one year to the next. These could affect the outcome as much as drugs. This can be illustrated both by the change in incidence of periventricular haemorrhage and in the number of shunts inserted over consecutive periods on our unit. The Table shows the incidence of periventricular haemorrhage in infants under 34 weeks' gestation in four successive 6 month periods during 1982–3. These results show a decreasing trend in infants of 30 weeks' gestation and less. During part of the first and third and for the whole of the second period phenobarbitone was administered before 4 hours of age in infants who formed part of a double blind trial to evaluate the role of this drug in the prevention of periventricular haemorrhage. The outcome of this trial has shown that the drug had no effect,[3] thus the reduction in periventricular haemorrhage during its use was independent of the drug. During the period 1982–3 no infant of 34 weeks' gestation or less had a shunt inserted for posthaemorrhagic hydrocephalus whereas during the previous two years (1980–1) five infants had shunts inserted. We would suggest that Drs Cooke and Morgan might have found a similar trend independent of their drug.

In their discussion they treat their results with caution but the summary of their article presents the reduction of handicap as established fact. We are concerned that before long drug firms are going to use this article as proof that the drug reduced handicap and will advertise it as such. We might find it hailed by the lay press as a miracle drug. We feel that in issues as important as this, studies must be prospective and double blind. Control and index cases must be collected over the same period of time before valid conclusions may be drawn.

References

1 Morgan MEI, Benson JWT, Cooke RWI. Ethamsylate reduces the incidence of periventricular haemorrhage in very low birthweight babies. *Lancet* 1981;**ii**:830–1.

2 Donn SM, Roloff DW, Goldstein GW. Prevention of intraventricular haemorrhage in preterm infants by phenobarbitone: a controlled trial. *Lancet* 1981;**ii**:215–7.

3 Whitelaw A, Placzek M, Dubowitz L, Lary S, Levene M. Phenobarbitone for prevention of periventricular haemorrhage in very low birthweight infants. *Lancet* 1983;**ii**:1168–70.

Table *Incidence and severity of periventricular haemorrhage (PVH) in 6 monthly periods during 1982–3 for all infants of 34 weeks' gestation and under*

		No of scans	*PVH (all grades) No (%)*	*Grade I PVH*	*Grade II PVH*	*Grade III* PVH*
All infants of gestational age ≤34 weeks	A	84	29 (34)	16	7	6
	B	64	20 (31)	8	9	3
	C	78	32 (41)	18	9	6
	D	71	25 (35)	14	5	5
Infants of gestational age ≤30 weeks	A	37	22 (59)	12	5	5
	B	30	16 (55)	6	9	1
	C	26	13 (50)	4	5	4
	D	35	14 (40)	8	3	3
Infants of gestational age 30 to 34 weeks	A	47	7 (15)	4	2	1
	B	34	4 (12)	2	0	2
	C	52	20 (38)	15	3	2
	D	36	11 (30)	6	2	2

A=infants born Jan–June, B=infants born July–Dec } 1982
C=infants born Jan–June, D=infants born July–Dec } 1983

*Includes parenchymal extensions of PVH; parenchymal haemorrhagic infarcts.

[4] Cooke RWI, Morgan MEI. Prophylactic ethamsylate for periventricular haemorrhage. *Arch Dis Child* 1984;**59**:82–3.

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Drs Cooke and Morgan comment:

Drs Dubowitz and Whitelaw raise objections to our paper on three fronts; that developmental assessment was not 'blind', that some of the control group were 'historical' controls, and that published data might be used for advertising purposes.

While accepting that it would be theoretically possible to know at follow up which treatment an infant had received, we feel that in practice such a bias probably did not occur. The infants are being followed up in a prospective study of nearly 500 survivors weighing under 1500 g and only a considerable feat of memory or extensive perusal of the intensive care notes would show the early management. Lack of staff prevents the luxury of a separate team to conduct our follow up studies.

The use of 'historical' controls for a part of the study was, we felt, better than no controls at all, although we accept the limitations on data interpretation imposed by their use. After our initial, double blind randomised controlled trial of ethamsylate we proposed a larger multicentred study on a similar basis, but were criticised by several colleagues (including some from the Hammersmith Hospital) for proceeding without a period of follow up to show that the drug itself produced no detectable problems later. Also, it was suggested (again by colleagues at the Hammersmith Hospital) that ethamsylate merely removed a marker (haemorrhage) of underlying brain injury, thus increasing the number of babies without bleeds who were abnormal at follow up. Our short paper was intended as an attempt to answer these questions. The summary merely states what was found and our discussion neither makes nor implies extravagant claims for the efficacy or otherwise of the drug.

The use that drug companies or the non-medical press make of published data is not—as Drs Dubowitz and Whitelaw well know—under the control of authors. Freedom of information and public debate is part of our way of life in this country. The price that we pay for this freedom is the occasional misleading or inaccurate use of that data. We have not publicly promoted our data, but we *have* been approached by parents asking why their babies were not being treated with vitamin E to prevent 'brain damage', as a neonatologist on breakfast television had suggested its use.

A multicentre, randomised double blind controlled trial of ethamsylate began last year and is currently in progress. We would be pleased to provide information for other centres who might like to participate.

Age as a main determinant of renal functional damage in urinary tract infection

Sir,

Berg and Johansson present a study of 61 girls with recurrent urinary tract infections and at least one febrile infection[1] 'in order to detect those patients at high risk of developing renal damage', and recommend early diagnosis 'to prevent future renal damage'. This study neither aids detection of those at risk, nor presents evidence that early diagnosis was also the outcome.

Firstly, they do not state how their patients were selected. If the criteria for entering the study were in any way age dependent, they could make no comparison across age groups. Secondly, they present a single estimation of glomerular filtration rate and then discuss the period when deterioration occurred without any sequential data. Two examples illustrate why this is insufficient. It may be that some children have dysplastic kidneys which are also vulnerable to infection, present early, and deteriorate no matter what treatment is instituted. Alternatively, suppose the chance of deteriorating renal function is independent of age and simply increases with the duration of follow up. The children presenting early would tend to have longer follow up from the first infection and greater chance of renal damage. Berg and Johansson, however, make no attempt to control for the duration of follow up, they simply state 'there was no sign of decreasing glomerular filtration rate with increasing follow up time', without presenting data on this vital point.

In summary, their data is difficult to interpret without more information.

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Drs Berg and Johansson comment:

As stated in our paper,[1] patients who had had signs of acute pyelonephritis (that is, fever and raised erythrocyte sedimentation rate) were selected for the study. Furthermore, as stated in the discussion section, indications for the renal function tests were abnormal intravenous urogram findings or frequent recurrences of urinary tract infection. Since renal function is not fully developed until the age of 1½ to 2 years, patients younger than that were not studied.

In our study we presented single glomerular filtration rate estimations only, but a paper presenting data from follow up investigations is in preparation. We agree that some patients might have had dysplastic kidneys but this diagnosis cannot be settled with certainty without renal biopsy or at necropsy. We believe that the three patients with very low glomerular filtration rates might have dysplastic kidneys.

Some information on glomerular filtration rates in relation to follow up time is available from Figs. 1—3 of our article. In Fig. 1 the glomerular filtration rate was related to the age of the patient at the time of investigation. All patients with glomerular filtration rates less than −2 SD had their first pyelonephritis before the age of 3 years. If the three patients with the lowest rates are excluded, there is no tendency to decreasing renal function with age or follow up time (age, 1 to 3 years). To clarify this question further we now include a Figure in which the glomerular filtration rate is related to the duration of follow up. As mentioned in the paper,[1] the mean follow up