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Correspondence

Febrile convulsions and anticonvulsant therapy

Sir,

Aldridge Smith and Wallace[1] argue in favour of giving continuous anticonvulsant medication to prevent possible recurrences of febrile seizures. In our opinion, methodological errors make this conclusion questionable.

The assignment of treatment in this study was not only non-random, but was made in a manner that eliminates the possibility of making useful comparisons of Griffiths developmental quotients (GDQ). Specifically, all children of a younger age and abnormal neurodevelopment were given anticonvulsant medication. Others were assigned sequentially, but socioeconomic level influenced compliance if medication was assigned,[2] and noncompliant patients were considered untreated. All of these factors affect significantly the outcome of developmental testing—for example, early infant testing depends heavily on evaluating motor function, while testing at a later age is based on verbal performance, which is closely related to socioeconomic level. The mere demonstration in Table 1[1] that assignment groups did not differ greatly in GDQ scores at the start of treatment does not validate the eventual comparison at 24 months, if the patients' prognosis was confounded by their treatment.

In addition, the recurrence comparison (Table 3)[1] is invalid. Since anticonvulsant medication is known to reduce the rate of recurrence of fits,[3] and the choice of treatment was based on factors which affect developmental scores, any comparison between these will reflect factors determining the choice of treatment rather than the possible effect of recurrent febrile seizures.

An evaluation of the effects of treatment and the recurrence of fits should begin with groups which are comparable with regard to important factors such as age, socioeconomic level, and prior neurological status. The proper comparison to be made is the change in GDQ over 24 months.

This paper does not, in our opinion, supply the clinician with an adequate basis on which to make decisions on treatment.

References

[1] Aldridge Smith J, Wallace S J. Febrile convulsions: intellectual progress in relation to anticonvulsant therapy and to recurrence of fits. *Arch Dis Child* 1982; **57**: 104–7.

[2] Wallace S J. Prevention of recurrent febrile seizures using continuous prophylaxis: sodium valproate compared with phenobarbital. In: Nelson K B, Ellenberg J H, eds. *Febrile seizures*. New York: Raven Press, 1981: 135–42.

[3] Wolf S M, Carr A, Davis D C, *et al*. The value of phenobarbital in the child who has had a single febrile seizure: a controlled prospective study. *Pediatrics* 1977; **59**: 378–85.

D G Hirtz, Y J Lee, K B Nelson, and J H Ellenberg
National Institute of Neurological and Communicative Disorders and Stroke, Bethesda, Maryland 20205, USA

Dr Aldridge Smith and Dr Wallace comment:

Age and neurological status were not as unevenly distributed between our groups as Hirtz *et al.* suggest. As we stated in our paper,[1] 'Even among those considered at high risk of another convulsion, there were parents who were unwilling to give regular anticonvulsants. Thus the groups eventually receiving phenobarbitone, sodium valproate, or no treatment were comparable for factors considered to carry a risk of recurrence of seizures.' Those children with and without subsequent fits covered a comparable range of these factors. A direct comparison of GDQs at 24 months post initial fit (GDQ24), none the less, may be regarded as too blunt a test without an explicit control for other variables.

Our conclusions are, however, also confirmed when the comparisons are made using a regression analysis to control for age, social class, neurological status, sex, and initial GDQ.

$$F = \frac{R^2y.\ control}{1-R^2aU} \times \frac{DFe}{Dfy}$$ where $R^2y.\ control = R^2aU-R^2$ control, $R^2e = 1-R^2aU$, and $DFe = N-K-1$.

The F-value of the comparison of GDQ24 for children without subsequent fits and in receipt of continuous medication (drug present in the blood at each of the five times of testing) or who continuously received no drug is not significant ($F = 0{\cdot}0013/0{\cdot}2371 \times 42/1 = 0{\cdot}241$, $P>0{\cdot}05$). Comparison between all those children without subsequent fits and all those with subsequent fits shows the negative effect of subsequent fits on GDQ24 to be significant at the 5% level ($F = 0{\cdot}0110/0{\cdot}2307 \times 107/1 = 5{\cdot}120$, $P<0{\cdot}05$). The effect of the number of subsequent fits from (0 to 7) is significant at the 1% level ($F = 0{\cdot}0169/0{\cdot}2248 \times 107/1 = 8{\cdot}058$, $P<0{\cdot}01$)

We think these results confirm that our study does supply the clinician with an adequate basis for making treatment decisions. 'For children at high risk the present study supports continuous anticonvulsant medication until the child is past the vulnerable age. For those at low risk the present evidence suggests that treatment without the use of anticonvulsants should be considered.'

Plasma alkaline phosphatase activity in rickets of immaturity

Sir,

We were interested to read the article by Glass *et al.*[1] In a similar study[2] we showed that in a group of 26