

mean (SD) haemoglobin of 11.6 (3.3) g/dl in the group with neural tube defects compared with 11.8 (2.7) g/dl in the control group and was not significantly different ($t=0.38$, $p=0.7$).

Discussion

There is a significantly higher incidence of neural tube defect in the main population centres on the east coast of Ireland. The incidence in Dublin is 3.98 per 1000 and in Belfast is 3.86 per 1000,² and both are higher than our own incidence of 2.96 per 1000. It may be that our lower rate reflects differences in nutritional state and social structure. Unlike reports from other areas, we have not noted a change in the incidence of neural tube defect over the 11 years.

A possible link between nutritional factors, particularly folate deficiency, and neural tube defect was first reported in 1965.⁴ Smithells *et al* suggested periconceptual multivitamin supplementation as a method of reducing the incidence of neural tube defects.⁵ In our study there were no significant differences in haemoglobin values at the first antenatal visit between mothers of children with neural

tube defects and a control mothers. We have no data, however, for folate or vitamin B₁₂ concentrations.

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Anti-rotavirus antibody in cerebrospinal fluid

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SUMMARY Ten infants with benign convulsions associated with rotavirus gastroenteritis had no specific antibodies in cerebrospinal fluid by enzyme linked immunosorbent assay (ELISA). On the other hand, eight of 173 patients with other neurological diseases had specific IgG, IgA, or IgM antibodies. The reason for positive ELISA results is discussed.

We have reported a case of suspected rotavirus encephalitis detecting anti-rotavirus antibody in cerebrospinal fluid (CSF) by enzyme linked immunosorbent assay (ELISA) in this journal.¹ We further examined anti-rotavirus antibody in CSF specimens from other cases with neurological involvement to discover the relation between rotavirus and diseases of the central nervous system.

Patients and methods

Fourteen CSF specimens from 10 infants with

benign convulsions associated with rotavirus gastroenteritis and 230 CSF specimens from 173 patients with other neurological diseases were examined for anti-rotavirus antibody. The specimens were centrifuged and supernatant stored at -20°C until tested.

ELISA for antibody measurement was assayed using purified human rotavirus (serotype 4, subgroup II) and affinity purified peroxidase labelled goat antihuman IgG, IgA, and IgM antibodies.^{1,2}

Antirotavirus antibody in CSF was considered to be positive when the optic density of an examined 10-fold diluted CSF specimen was more than that of 1000-fold diluted positive control serum, because (1) if serum anti-rotavirus antibody penetrated passively to CSF the value in CSF was less than 100-fold that in serum, and (2) the mean optic density plus two standard deviations of negative samples was almost the same optic density of the 1000-fold diluted positive control serum. Positive samples were examined in duplicate and in a blocking assay.

Results

Fourteen CSF specimens, four paired and six at acute phase, from 10 infants with benign convulsions associated with rotavirus gastroenteritis yielded negative results. Eight (17 CSF specimens) of 173 patients (230 CSF specimens) with other neurological diseases yielded positive results. These positive specimens were pretreated with rotavirus and showed more than 50% blocking.

Twelve specimens were positive in specific IgG, eight in specific IgM, and seven in specific IgA. The positive cases comprised one newborn infant with *Escherichia coli* meningitis simultaneously afflicted with rotavirus gastroenteritis, one infant with group B streptococcus meningitis who later had rotavirus gastroenteritis, one child with mumps meningitis, one child with Japanese encephalitis, three adults with brain tumour who received chemotherapy and radiation treatment, one adult with neuro-Behcet's syndrome, and one child with congenital brain anomaly and hydrocephalus with shunt treatment.

Discussion

Rotavirus is an important cause of acute gastroenteritis in children. Patients with convulsions, encephalopathy, and (suspected) encephalitis have occasionally had rotavirus gastroenteritis.^{1 3 4} Anti-rotavirus antibodies were found in CSF specimens of

patients with neurological diseases that might not be caused by rotavirus infection. From these studies it was suspected that the raised anti-rotavirus antibody titre was due not only to invasion of rotavirus into central nervous system (our former case report¹) but also due to impairment of blood brain barrier or non-specific intrathecal production (our 17 cases and the patients with multiple sclerosis reported by Vartdal *et al*⁵).

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Improving facilities for children in an accident department

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SUMMARY A separate waiting and treatment area for children was established within an existing general accident and emergency department at relatively little cost. We describe how this was achieved and how it has benefited the children attending the department.

Figures for attendances by children at accident and emergency departments in the United Kingdom are incomplete, but it has been estimated that there are two million such attendances annually.¹ In South Glamorgan we have shown that up to 20% of the population under the age of 15 attend the accident and emergency department in a year.²

It is generally recognised that children should be given priority with their assessment and should not be expected to wait and be treated in the proximity of ill, and occasionally violent and abusive, adults. The provision of separate waiting and treatment areas is a logical way of dealing with this problem and has been recommended for many years.³ The Court report, however, showed that only 11% of accident and emergency departments provided separate facilities for children.⁴ In a more recent survey by the British Paediatric Association standing committee on accidents in children only 25% of hospitals that replied to a questionnaire provided separate waiting and treatment areas.¹

We describe how paediatric accident and emergency services were improved in an already