pyridoxine deficiency was excluded by therapeutic trial of intravenous pyridoxine with electroencephalographic control. Laboratory investigations gave no evidence of virus infection. IgM levels did not suggest prenatal infection.

This outbreak of a fairly high incidence of fitting suggests a toxic or infective element in the population with a striking temporal relationship to the time of birth. Many events are also time related to birth, such as admission to hospital, drug administration, initial feeding, and bathing. No special relationship could be seen for factors such as parity, duration of labour, time of rupture of membranes, or of vaginal examination after rupture of membranes. No particular nursery or staff members appeared to be particularly associated with the incidence. Cases occurred after elective caesarean section where the patient was never in the labour ward. Careful enquiry was made concerning possible toxin or drug exposure during pregnancy. No change in feeding practices or formulae could be recognised and the water and milk formulae and additives used for infant feeding were analysed and found to be normal. There was no suggestion that drugs or drug withdrawal could be related to these seizures.

There was a higher incidence with male babies, multiparous mothers, artificial rupture of the membranes, forceps delivery, breech delivery, and caesarean section. This may imply that some cases of fits owing to trauma or anoxia have been included or that such factors increase the likelihood of this syndrome becoming manifest. As shown in cases after caesarean section (Table 2) analysis of the pattern of onset, duration, and other clinical features in these cases does not indicate any difference from the majority of cases who had seemed entirely normal babies. Thus we suggest that anoxia or trauma may be contributory factors but usually the fitting occurs without preceding abnormality.

This syndrome is apparently similar to the cases described as ‘the seizures of the fifth day of life’ by Dehan et al. This accords with our term fifth day fits which should be used for idiopathic convulsions beginning between 3 and 7 days after birth in an apparently normal baby. The diagnosis can only be made in individual cases after the exclusion of known causes of fits. The majority start on the fourth or fifth day and the seizures are multifocal and often of short duration. They often persist for less than 48 hours even without anticonvulsant therapy, and are apparently benign. No deaths have occurred in our experience. Follow-up studies are needed to determine the long-term prognosis.

We present these data as it appears to be an important clinical problem and a definition of the clinical features may contribute to the search for the cause.

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References


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Commentary

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The onset of convulsions about the fourth or fifth day, multifocal in nature, and with the EEG criteria certainly suggests a metabolic or an infective cause. The authors have excluded most of the commonly accepted metabolic causes of convulsions and there was no evidence of infection after examination of the cerebrospinal fluid (all infants) or after viral cultures of cerebrospinal fluid (in a reasonable number of them). The fact that the fits occurred after moving to a new building demonstrates how subtle some of the environmental changes both in utero and ex utero can be. Despite exhaustive detective work no cause has been found for these and the authors would be grateful for any suggestions from readers as to further investigations.

The paper stresses how a convulsion in the newborn infant can be caused by many factors other than those related to birth, genetic disease, biochemical disorder, or abnormalities of pregnancy. We have seen how the diet of the mother in regard to the content of vitamin D or her exposure to sunlight
in the last trimester may influence the infant's susceptibility to fits. The ingestion of large amounts of pyridoxine or of hypnotic or narcotic agents can result in withdrawal fits. Excess sodium, excess phosphate, or deficient pyridoxine in the milk have each been incriminated as causing fits in the newborn infant. Suspicion of agents such as hexachlorophane used in bathing the babies showed yet another environmental risk, but many of us were not aware that the mothers were using quite high concentrations of hexachlorophane in nipple sprays, and if one looks at some of the odd compounds in nappy rash ointment, breast creams, and gripe waters, one realises that the baby is surrounded both in utero and ex utero with a potentially toxic environment. It is sometimes difficult to know what parameters to measure as in the hyperammonaemia or hypermethioninaemia that can follow high protein feeds or some types of parenteral nutrition. This paper poses an interesting question regarding the aetiology of the fits and shows that neonatology does not simply consist of dotting the i's and crossing the t's; the infant is still capable of expanding its repertoire.

The following articles will appear in future issues of this journal:

Behavioural effects of phenobarbitone and phenytoin in small children
C J Bacon, J D Cranage, A M Hierons, M D Rawlins, and J K G Webb

Congenital hypothyroidism. Clinical and laboratory characteristics in infants detected by neonatal screening
D A Price, R M Ehrlich, and P G Walfish

Use of external expiratory resistance in intubated neonates to increase lung volume
A S Moomjian, J G Schwartz, J G Shutack, A R Rooklin, T H Shaffer, and W W Fox

Comparison of the intravenous insulin and oral clonidine tolerance tests for growth hormone secretion
The Health Services Human Growth Hormone Committee

Prophylaxis in bacterial meningitis
H D Wilson

New immunofluorescent blood test for gluten sensitivity
D J Unsworth, P D Manuel, J A Walker-Smith, C A Campbell, G D Johnson, and E J Holborow

Results of selective treatment of spina bifida cystica
J Lorber and S A W Salfield