

Clinical and subclinical deficits at 8 years in a geographically defined cohort of low birthweight infants

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Abstract

Objective - To determine the prevalence of subclinical deficits in cognitive and motor function in low birthweight infants.

Design - Children of birth weight ≤ 2000 g born to mothers resident in Merseyside in 1980-1 assessed using the Wechsler Intelligence Scale for Children (WISC), the Neale analysis of reading ability, and the Stott-Moyes-Henderson test of motor impairment (TOMI). Children attending normal schools assessed with controls matched for age, sex, and class in school. Children attending special schools were assessed unmatched.

Subjects - 233 matched index case-control pairs attending normal primary schools and 46 unmatched children attending special schools.

Setting - Primary and special schools.

Main outcome measures - IQ score, reading age in months, and TOMI score.

Results - Index cases when compared with controls had a lower WISC score (mean IQ difference 8.8; 95% confidence interval (CI) 6.8 to 10.7), a lower reading age (mean difference 6.5 months; 95% CI 4.0 to 9.0), and poorer motor performance as shown by the TOMI score (mean difference 1.4; 95% CI 1.1 to 1.8). Of the children attending special schools, 23/46 (50%) had a WISC score ≤ 50 .

Conclusions - Low birthweight children have significant subclinical deficits of cognitive and motor function and extra resources, especially in education, may be required to meet their needs.

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Developments in neonatal intensive care have led to striking improvements in mortality rates among low birthweight infants.¹⁻³ The survivors are at increased risk of a variety of clinical disabilities, including cerebral palsy, learning disability, hearing and vision deficits, and hydrocephalus.⁴ There is also concern that, even among those infants without overt clinical disability, there may be subclinical deficits of motor and cognitive performance which have repercussions for the child's subsequent education and employment.^{5,6}

Several studies have reported on the psychometric assessment of low birthweight infants. However, some have been concerned with a hospital defined population of infants^{5,7,8} and are therefore susceptible to bias associated with differential patterns of referral to hospital, particularly in relation to certain social variables such as social class and parental income. Others have investigated a geographically defined cohort without a control population.⁹ Yet others have been hampered by the lack of controls¹⁰⁻¹² or by limitation to high risk groups.¹³ Recently the follow up of a total population of infants¹⁴ or of geographically defined cohorts of low birthweight infants with appropriately matched controls^{15,16} has allowed a comparison of cognitive ability which is less susceptible to bias.

We have previously reported on survival and morbidity in a cohort of infants of birth weight ≤ 2000 g, born in 1979 to 1981 to mothers whose area of residence at the time of birth was in the five health districts that comprise the county of Merseyside.¹⁷ We report here on a subset of this cohort together with matched controls who were reassessed when aged 8-9 years for evidence of clinical impairment and subclinical deficits of cognitive and motor performance.

Methods

SELECTION OF THE SAMPLE

The subsample that is the basis of this report is taken from those infants born in 1980 and 1981. Infants born in 1979 were excluded because the intention was to evaluate intensive care, and it was considered that neonatal intensive care only became available for those referred for it in the Mersey region after the appointment of a consultant neonatologist late in 1979.

All infants of birth weight ≤ 1500 g and born in 1980 and 1981 were included. Of those weighing 1501-2000 g at birth, those classified as being disabled/possibly disabled or who missed out on the assessment at age 3 years

It has not been the policy of the journal to request structured abstracts. The editors' views were summarised in a previous editorial (Writing economically, March 1990: 251) where we suggested that structured abstracts could be dull to read. We recommended structured *contents* but not structured style of presentation. We are aware, however, that certain research papers *do* lend themselves to a structured style of presentation of the abstract and we now wish to 'test the water'. Some papers will now be published with a structured abstract. If you are submitting a paper and you feel the abstract would be more helpful to readers in a structured style then please submit it in this form.

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INDEXING

Indexing the *Archives of Disease in Childhood*

From the January issue 1994 there will be a change in the method of indexing papers while the author index will remain the same. Papers will be indexed by a keyword system, and authors will be asked to choose up to three keywords for each paper at manuscript stage. A keyword is a word (or phrase) that will identify the subject matter of a paper. The index will be published, as usual, at the end of each volume. The format will be different, with the title of the paper repeated after each keyword on every entry.

Choosing index headings would not appear difficult but there are problems of synonyms, phrasal headings, proprietary and pharmaceutical names of drugs, syndromes, Latin words, and assorted lay terms. Examples of this can be seen in cardiac/heart failure; whether to use pulmonary or lung; ventricle, left, or left ventricle.

An index should be consistent. It is not good if half the entries are under 'Left ventricle' and the other under 'Ventricle, left', and whereas it is reasonable to make some decisions about the entries that can be anticipated, authors will not know what other work is being published, or under what titles, in the same volume. The keywords will be chosen at the earliest stage of publication, and as each article will be dealt with in isolation there will be no links between articles of like subject matter.

Authors are advised to scan papers for keywords that may not be in the title, to use British approved names rather than

pharmaceutical names for drugs, and to avoid general terms such as clinical, complications, adverse effects, and patient. As the subject of the journal is 'children' it is better not to use this as a heading, except in 'child abuse'. In general, it is better not to split accepted concepts. For instance, 'growth hormone deficiency' is preferable as a keyword, rather than 'deficiency, growth hormone'.

Some shortened forms can be accepted. DNA, AIDS, HIV, and cAMP are universally known and are the images that spring to mind when tracking articles, but mostly the full form should be used as the keyword. Alpha-fetoprotein, alpha and beta receptor blockades usually go under these words, and gamma-aminobutyric acid under GABA, but mostly the Greek letter is not used in alphabetisation. Put all 'ventricular' entries under 'ventricle', and use 'heart failure' rather than 'cardiac failure', 'aortic arch' rather than 'arch, aortic', but 'cardiomyopathies' under the specific type. When more than one keyword (or phrase) is used the one with the most explanatory power should be written first. There will be no cross references in the keyword index.

This is simply an attempt to guide authors and perhaps to warn of the pitfalls, but it is important to remember that if authors wish to have their work found easily in the index they should consider the keywords carefully.

DOREEN BLAKE
Indexer