Specific learning disorders/ neurodevelopmental disorders

Editorial

No area of developmental neurology is more complex than the specific learning disorders (SLD): the terminology is a morass; the epidemiology, in consequence, is extremely difficult; diagnosis is a problem due to changing symptomatology with age (3-year-olds can't be dyslexic or can they?); the extent to which investigations are initiated is financially and biologically controversial; and management may range from pharmacotherapy to educational strategies through to alternative therapies. Because these children very clearly attract the attention of educationalists and health professionals, they often fall into a divide where neither professional is fully involved. Many clinicians report that they frequently see children in late childhood/early adolescence where the biological background to a SLD has not been identified, resulting in behaviour disturbances which may be criminal.

Epidemiological studies point to a prevalence of SLD of about 10% in the childhood population. Some people think this is high, but when one reviews the complexities of development of the central nervous system, it is hardly surprising. Indeed, it is important to recall that problems may be temporary, particularly if effective intervention is provided. In epidemiological studies, a difficulty has always been where to put a cut-off point. Early workers hoped to find bimodal distributions in the population, with a clear group of children with pathology separating them from the normal block. This, however, proved not to be the case.

The reason for this becomes clear when one begins to look at aetiological studies, particularly the genetic ones. In two of the most common groups of problems – attention-deficit/hyperactivity disorder (ADHD) and reading difficulties – genetic studies of twins reveal a continuum and not a categorical diagnosis: '... ADHD can be conceptualized as being at the extreme of a dimension "hyperactivity"' (p 162)[1]. Of course, a similar symptomatology can occur where there is unequivocal damage, such as following encephalitis. Imaging studies allow us to identify areas of the brain which are involved[2,3]. Despite its limitations, the EEG is also beginning to allow us to point to areas of the cortex where functioning might be disturbed.

The diagnostic task is often made more difficult because many separately identified disorders, such as developmental coordination disorder (DCD) and ADHD, have substantial overlap and this leads to the inherent terminological problems. The Scandinavians prefer the label DAMP (deficits in attention, motor control, and perception) which bridges the overlap between ADHD and DCD. A subset of symptoms identifying one category of specific learning disorders inevitably means that a search must be made for others. A combination of labels may be necessary, for example, attentional disorders plus reading difficulties. The clinicians' diagnostic task is to convince themselves, the family, and the teachers that the child has a basic biological problem and his/her disturbing behaviour in the classroom is not simply an antisocial behaviour which could be resolved with guidelines developed by an educational establishment. A range of investigations has been suggested, including genetic and imaging studies, chiefly MRI and EEG. Probably a very small number of children currently diagnosed with SLD have received these investigations, but they are now recommended[4].

SLD are due to these problems of the developing brain and can, therefore, be described as neurodevelopmental disorders. Management of these disorders requires a multidisciplinary approach with educationalists and health professionals understanding each other's theoretical background in order to plan and assess the outcome of any intervention. Thus the use of pharmacotherapy, for example, in the attention disorders requires that adequate monitoring of its effects occurs in schools and that the educationalists understand the nature of the problems proposed by the clinician and their rationale for treatment. Equally, the clinician must not be iconoclastic about a clear genetic reading difficulty, but recognize that there is increasing evidence that a sensible management plan can help with the condition.

To conclude on a more hopeful note: there are now programmes which have a proven capacity to help virtually all the common SLD – dyslexia, dyscalculia, attention-deficit disorder, DCD. Those who don't receive such help involve a high subsequent cost to society and to themselves, and this should spur us on in our efforts to help effectively with these neurodevelopmental disorders.

Martin Bax

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