ATTENTION-DEFICIT/HYPERACTIVITY DISORDER (AD/HD): CLUES AND STRATEGIES FOR COPING AT SCHOOL

John Alban-Metcalfe looks at research on Attention-Deficit/Hyperactivity Disorder and outlines the main forms of intervention, both medical and educational. He goes on to describe how the principles of intervention can be applied, whether in the context of the school or the home.

Readership: primary, secondary, special

INTRODUCTION

There is a high probability that among any class of 30 children, at least one child will show at least some of the symptoms of AD/HD – Attention-Deficit/Hyperactivity Disorder. The characteristics or symptoms of AD/HD are a significant level of inattention, impulsiveness and hyperactivity. It is the last of these that often leads children with AD/HD to be described as ‘hyperactive’, this being the aspect of their behaviour that causes them to be most difficult to manage at school, as well as at home.

Inattention shows itself in behaviours such as failing to give attention to detail, not listening to what is being said, difficulty with organising their work and being easily distracted; hyperactivity in fidgeting, leaving one’s seat and running around excessively; and impulsiveness in blurting out answers before questions are finished, and difficulty in waiting or taking turns. Diagnosis of AD/HD as a medical condition, which is in essence what it is, is made by a paediatrician or a child psychiatrist, but parents and teachers play an important role in identifying the condition in the first place, and in providing observational data which will inform the diagnosis. Diagnosis is dependent on three conditions being met. These are: (i) that the child shows a minimum number of symptoms both of inattention and of impulsiveness-hyperactivity; (ii) that the symptoms are shown in at least two different situations, usually school and home; and (iii) that the symptoms are first developed before seven years of age (1).

INCIDENCE

The incidence of AD/HD seems to be around one to three per cent of children aged seven to 11 years, though estimates of one to two per cent in the UK are based on a different, slightly stricter set of criteria. It is generally agreed that the condition is much more common in boys than in girls (estimates vary from 6:1 to 3:1) (2). However, since AD/HD is not an ‘all-or-nothing’ condition, many more children than those diagnosed as having the condition have many of the symptoms to such a degree as to interfere with their schoolwork and their relationships with others. By no means all children with AD/HD have a Statement of SEN.

NATURE OF AD/HD

Although, as the name suggests, attention is an important component of AD/HD, it is by no means clear that it is the most important factor, as was originally thought. First of all, research shows that there are two types of inattention: focused attention and sustained attention, and that children with AD/HD have difficulty only with the latter (as, for example, in tests of vigilance). Secondly, there are reasons for suggesting that the fundamental cause of AD/HD is in the area of hyperactivity-impulsiveness, and that this has a number of secondary effects, including difficulty with sustained attention. According to one of the most eminent researchers, Russell Barkley, the cause of AD/HD can be shown to be...
deficiencies in what he describes as the ‘behaviour inhibition system’ (BIS) (3,4). The relationships between AD/HD as a psychological condition, the BIS, and the symptoms of AD/HD are shown in Figure 1.

Figure 1. Hypothesised relationships between AD/HD and inattentive, hyperactive and impulsive behaviour

What Barkley (3) suggests is the reason why children with AD/HD behave as they do is that they have great difficulty in controlling their behaviour. In tasks requiring sustained attention, this leads them to lack the motivation to stay on task, and thus to a tendency to jump from one task to another. Similarly, with hyperactivity and impulsiveness, difficulty with self-control causes them to be unable to control bodily movements, as in fidgeting or walking around the classroom, or to act on impulse, as in difficulty with turn-taking or blurting out answers. It may be appropriate, for reasons referred to below, to hypothesise a separate condition, ‘attention deficit’, as the cause of inattentive behaviour in the absence of hyperactivity or impulsiveness.

An alternative, though not radically different, view is that of Brown (5), who argued that the behaviours associated with AD/HD are attributable to inconsistency in initiating and sustaining arousal of the brain functions concerned with organisation, planning, energy, alertness, mood and memory, as well as self-control.

This model is consistent with everyday observations that children with AD/HD, (a) can attend over very long periods of time to tasks that they find interesting, and (b) will attend to tasks when their behaviour is closely supervised. In the first case, in activities as different as, say, playing video games/watching television and fishing, the motivation for sustained attention would appear to be intrinsic interest in the task; in the second case, it would seem to be ‘social motivation’ – i.e. motivation attributable to someone else’s interest in what they are doing.

The BIS model, together with these everyday observations, also provides clues as how best to enable children with AD/HD to learn to cope with their life at school and at home.

### SUB-TYPES OF AD/HD

The diagnosis of AD/HD depends on the presence to a significant degree of six of the nine criteria for inattention, plus six of the nine criteria for hyperactivity-impulsiveness. Some children show six or more of the characteristics of either inattention or hyperactivity-impulsiveness, but not both. Such children are sometimes described as having ‘AD/HD Inattentive-type’, or ‘AD/HD Hyperactive-impulsive-type’, respectively (4).
However, as suggested in Figure 1, it might be better to regard AD/HD Inattentive-type as a separate condition.

In support of this suggestion is evidence (i) that a different kind of attention is involved in AD/HD Inattentive-type, and (ii) that such children have greater difficulty with memory and with perceptual-motor speed than their Hyperactive-impulsive counterparts. They are also described by their teachers and parents as cognitively slower, more prone to day-dreaming and more socially withdrawn.

ASSOCIATED CHARACTERISTICS AND BEHAVIOUR

The symptoms of AD/HD, described above, are collectively referred to as its ‘morbidity’, those characteristics that define the condition. However, children with AD/HD often show certain characteristics or behaviours that are associated with the condition. These are referred to as the ‘co-morbidity’, and are also of great concern for teachers and parents alike.

In some cases, it is easy to understand how and why these characteristics or behaviours might have developed; in other cases, it is not so evident. Three of the most common correlates of AD/HD are poor academic attainment, high level of non-compliance and aggression, and difficulty with peer relationships.

Thus, children with AD/HD tend to underachieve, relative to the level of attainment that could be expected of a child with similar abilities and aptitudes. Their low attainment can be attributed in part to low rates of on-task behaviour, and low rates of work completion, but their difficulties are compounded by an inability to organise tasks and activities. In some cases, inattention can be so severe as to lead the child to have learning difficulties, caused by failure to develop basic skills.

There is consistent evidence of a correlation between hyperactivity and aggression, with some children showing defiance or non-compliance towards authority figures, poor temper control, and being argumentative and verbally hostile. Problems of non-compliance and temper control are characteristic of another condition, known as Oppositional Defiant Disorder (ODD), and up to 40 per cent of children with AD/HD (and up to 65 per cent of teenagers) may also show signs of ODD. Furthermore, up to 25 per cent of secondary-age students may show more serious forms of inappropriate behaviour, such as stealing, physical aggression and truancy; and when associated with conduct disorder, there is a strong link between AD/HD and substance abuse (see references (4), (6), (7)).

Difficulties in developing peer relationships are thought to be attributable to inattention and impulsiveness which disrupts social interactions. Thus, in social situations, children with AD/HD may fail to attend to what peers are saying to them, interrupt conversations at inappropriate times or barge in on ongoing games. They may then employ aggressive tactics to impose a solution on the interpersonal problem that arises, and be prone to losing their temper. In all these situations, however, it is not a lack of understanding of what they should do, but an inability actually to do so. In other words, it is a difficulty with social performance, rather than an absence of social knowledge.

EDUCATIONAL AND MEDICAL INTERVENTION

There are two principal forms of intervention: medical and educational. The former comprises the administration of a psychostimulant drug such as methylphenidate (Ritalin); the latter comprises a combination of behaviour modification, class management and control, and the encouragement of self-management. The use of psychostimulants is based on the suggestion that hyperactive children may be physiologically under-aroused (references (3), (4), (7), (8)). The action of such drugs is on the frontal part of the brain, which is responsible for organisation and planning.

Educational intervention ranges from imposing patterns of behaviour on the child, which involves strategies that include skills training, the use of by-pass techniques and, in extreme instances, behaviour modification, through to encouraging and enabling of self-monitoring and self-control (see references (9)–(11)).

For some children, as the North Somerset project (12) has shown, intensive, structured educational provision can be effective in the absence of medication. However, among children who have AD/HD to an extreme degree, the consensus appears to be that educational intervention alone
is not sufficient; conversely, nor is medical intervention on its own (13). What is appropriate is an holistic approach of a kind that ensures effective multi-professional cooperation (references (14), (15)).

**PRINCIPLES OF INTERVENTION**

In designing and implementing a programme of intervention, a number of principles should be borne in mind. Some of these are unique to children with AD/HD, others are common to all children with emotional and behavioural problems, and indeed to children in general (6).

1. **Assessment**

   With all children, any course of intervention must be based on a thorough assessment of the behaviour that is the subject of concern. Only if this is done can the teacher, in cooperation with the parents, design and develop an appropriate course of intervention.

2. **Specificity and frequency of reinforcement**

   Typically, children with AD/HD differ from other children in the way in which they respond to reinforcement – i.e. reward and punishment; therefore:

   - they require more specific and more frequent feedback; there is evidence to suggest that, in contrast to other children with emotional and behavioural difficulties, children with AD/HD have difficulty in maintaining their behaviour when reinforcement is intermittent – this means that, initially at least, they should be given feedback that, as well as being highly specific, is relatively continuous;
   - they tend to respond better to smaller and more immediate rewards than to larger, delayed rewards, such as a reward for completing a whole piece of work; in designing intervention programmes, therefore, it is important to break down large tasks into smaller components, and to ensure that rewards are given immediately upon each successful completion.

3. **Type of reinforcement**

   In general, children (and adults) with AD/HD respond better to positive reinforcement (e.g. praise, or other rewards) than to negative reinforcement (e.g. reprimands, or other punishments). This is particularly true for children with AD/HD, who do not appear to respond to severe reprimands or other punishments.

   However, there is the danger that, if the teacher relies exclusively on continually praising the child for what s/he has achieved, this may actually have the result of distracting the child from the task at hand. There is also the danger that exclusive use of positive reinforcement might lead the teacher not to correct the child’s work (i.e. not redirect the child towards the kind of task behaviour that would lead to a successful solution or other outcome, for fear of giving any negative reinforcement), even when the child is doing their work wrongly, or is acting inappropriately. An optimal strategy is one that combines:

   - a preponderance of positive reinforcement with mild negative reinforcement, such as correcting errors (cognitive) and prudent reprimands (general behaviour), with
   - verbal reprimands and redirection that are specific to the task at hand, and are consistently delivered immediately after the problem behaviour occurs, while
   - ensuring that the child’s dignity and self-esteem are maintained by speaking briefly and in a calm and quiet way, and privately, if possible.

4. **Type and structure of tasks**

   In common with other children who experience difficulties in learning, children with AD/HD need to have:

   - instructions that are limited to a few steps at a time;
   - tasks which are reduced in their scope.

   Thus, initially, the teacher should:

   (a) carry out a detailed task analysis of any new activities
   (b) decide which components of the task can be achieved in smaller ‘packages’ which are meaningful to, and achievable by, the child.
The length and complexity of tasks can be increased gradually as the child is successful in completing increasingly larger units of work.

5. Repetition and practice

Although for most children it is appropriate to repeat tasks in order to correct mistakes, this is not the case for those with AD/HD. This is because to do so would be to induce boredom and to exacerbate attentional problems.

Therefore, in such situations, correctional assignments should be set, which are different in content from the original, but which are designed to develop understanding of the same area of knowledge and understanding, or to practise the same skill.

6. Checking understanding

Task analysis and task reduction of the kind referred to in principle 5, above, should be accompanied by ensuring the child’s understanding of what is required of her/him. To ensure this, the child should be asked to repeat to the teacher the directions given. In this way, the teacher can determine whether the child understands what s/he is being asked to do, and that s/he has remembered all the components of the task.

7. Focus of instruction

As with all children, control and management of behaviour is a means to an end, rather than an end in itself. For this reason, when giving instructions, the teacher should focus attention on academic attainment and performance. Thus, there should be emphasis on completing work, and on accuracy, rather than on specific task-related behaviours, such as paying attention or staying in one’s seat.

In this way, there should be an emphasis in both the teacher’s and the child’s mind on:

♦ the important outcomes of teaching and learning;

♦ promoting the organisational and other academic skills (such as selecting appropriate material, responding to feedback on attainment and progress), which are necessary for effective learning.

8. Activity versus inactivity

One important principle is referred to as the ‘Dead-man test for behaviour’, which states that ‘if a dead boy could do it, it wasn’t behaviour’ (reference (16), p. 457). Clearly, instructions such as ‘Sit still’ and ‘Do not call out’ violate the principle, and should be replaced by requests that require the child to be active in some way – either cognitively or through some other kind of behaviour. An appropriate instruction might be ‘Sit still and try to guess what will happen next in the story’, or ‘Put your hand up when you are sure you know the answer’.

An alternative strategy might be to give the child a specific task to do of the kind that will occupy her/his attention during the time s/he is required to sit still and listen; or to suggest that the child draw story-related pictures during story-time, or drawings or diagrams to represent instructions that are being given or concepts being explained. (These can be assessed and commented on by the teacher.)

‘Dead-man test for behaviour’

Stick a pin in and see if it moves!

9. Types of reinforcers/rewards

When selecting which reinforcers or rewards to give for appropriate behaviour, one guiding principle is the offer of preferred activities (e.g. a specific free-choice time activity, or access to the computer), rather than concrete rewards, such as sweets. Another is to observe the child during free time, or better, to talk to her/him to ascertain what s/he enjoys doing. The teacher can only make a best guess as to what the child would choose, but that guess could be wildly wrong, and thus ineffective; it is better to ask the child.

What the teacher should do, on the basis of observation plus discussion with the child, is to decide on a ‘reward menu’ from which the child can choose her/his reward. (The involvement of
the child in this way can have the additional effect of encouraging a sense of control over their life."

In this way, the teacher can make access to a preferred activity contingent on completion of a task in a less preferred subject. However, in order to maintain the child’s interest and motivation (i.e. to prevent ‘reinforcer saturation’), the rewards available should be varied or rotated frequently.

10. Choice of reward

The incentive value of reinforcement increases if, at the beginning of each day (or at the beginning of each week), the teacher and child jointly review the range of possible rewards. This can also serve to give the child a sense of ‘ownership’ of learning and the learning process.

INTERVENTION IN PRACTICE

Application of these principles, whether in the context of the school or the home, takes three principal forms: adult-directed activities, peer-directed activities and self-directed activities. Of these, only the first and the third have been developed to any significant extent.

1. Adult-directed activities

For activities of this kind – often referred to as Contingency Management Procedures – to be successful, it is necessary to recognise that although the goal of simply managing the child’s behaviour with a view to preventing antisocial behaviour and avoiding maladjusted behaviour is valid and valuable in itself, it is not enough. Rather, it must be complemented by strategies devised to optimise academic achievement and performance. To this end, the focus of teacher action, in particular, should be on encouraging and enabling the child to succeed on academic tasks. Thus, it is better for the frequent and specific feedback, and the breakdown of tasks into small steps with an immediate reward, to be in relation to a number of sums to be completed within a certain number of minutes, rather than remaining seated over a corresponding period of time.

Where, as the child progresses, tasks increase in difficulty and in duration, goals such as ‘successful completion of a piece of work’ can be defined in terms of number of actions to be completed within a specified time, level of accuracy and reviewing the work before it is handed in to the teacher. With parental cooperation, both of these procedures can also be applied to homework. With both teachers and parents, relevant and meaningful ‘pro-social’ goals can be selected and analysed in the same way. However, with academic and social goals, a combination of much positive reinforcement, with an occasional correction or reprimand, can be valuable in enabling the child to define accurately what the task to be learnt involves.

Contingency contracting is another intervention strategy, but here the basis is a contract which stipulates the behaviours (academic or social) and the consequences contingent upon meeting its terms. However, it is usual for there to be a tangible reward – ‘if I have a successful day, I can play out this evening’ (or, whatever is mutually agreed with the child). With rewards of this kind, as in other aspects of the child’s behaviour, effective home–school liaison is essential.

2. Peer-directed activities

Peer-directed activities, such as peer-tutoring, are much more difficult to set up, for the obvious reason that children with AD/HD are likely to be shunned by their contemporaries. Where this has been successful, it has been in practising and developing basic skills in literacy and numeracy, and has been part of a whole-class activity.

3. Self-directed activities

One of the primary goals of educating children with AD/HD must be to enable them to develop an adequate level of self-control. For this reason, teaching and encouraging self-directed strategies, which include self-monitoring, self-reinforcement and self-instruction, are of paramount importance. An example of a technique to develop self-monitoring is to encourage the child to reflect on whether what s/he is doing is on task or off task, when prompted to do so by, say, a bleep from a tape recorder, or a signal from the teacher. This approach is most effective when in combination with self-reinforcement, particularly among children of secondary school age. Thus, once criteria for academic and/or social behaviour have been agreed, the child – initially in association with the teacher – is encouraged to evaluate her/his own actions. Self-instruction, which may be characterised as a ‘stop, look and listen’ approach to tasks, can be related directly to the ‘inner speech’ stage of development that all children go through, as described by Vygotsky. For children
with AD/HD, however, this facility has to be taught, and there is evidence that they have difficulty in generalising the technique from one situation to another.

The strength of each of these strategies lies in the extent to which they are taught and consistently encouraged. This, in turn, implies the need for coherent and consistently applied whole-school policies and practice for enabling children with AD/HD to benefit from coming to school, and for strong and open communication between parents and teachers. However, success in these areas can only be achieved if SEN Coordinators are appropriately qualified, and class teachers trained, to recognise and to provide for the needs of such children.

**CONCLUSION**

There has been some reluctance on the part of some practitioners (educational and medical) to recognise AD/HD as a condition separate from other forms of emotional and behavioural difficulty. It is to be hoped, therefore, that evidence from many sources of its nature and effective treatment will not lead AD/HD to fall victim to the same scepticism as initially greeted dyslexia. Children (and adults) with AD/HD do have particular special needs, and these needs should be recognised and provision made.

**References**


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