REVIEW ARTICLE

Practical Management of Attention Deficit Hyperactivity Disorder (ADHD)

Rajeev Banhatti* and Kedar Dwivedi**

*Consultant, Child and Adolescent Psychiatrist, Kettering, UK;

**Professor, London Metropolitan University and Director, International Institute of CAMH

Evolution of the concept

Table 1 outlines the evolution of the concept as it has developed over time and under different names and has become more acceptable, as its validity has improved with the advent of CT, MRI and PET studies in late 1980s¹.

Table 1. Evolution of the Concept

Minimal Brain Damage Syndrome	1947
Minimal Brain Dysfunction	1962
Hyper Kinetic Syndrome of Childhood (ICD-9/DSM-II)	1965/68
ADDH or ADD(DSM-III)	1980
ADHD (DSM-III-R)	1983
ADHD (3 subtypes) DSM-IV	1994
HKD (main 2 subtypes) ICD-10	1995

Ethnicity and ADHD

Children who fulfil the diagnostic criteria for ADHD are found in almost all cultures that have been studied so far². The rates differ to some extent often reflecting the different instruments of assessment used. Cultural environment may affect a child's behaviour, but the differing attitudes of parents, teachers, clinicians and the society towards acceptable behaviour will also influence diagnosis³. Some European countries (e.g. Italy, Spain) and India and other Southeast Asian countries can be more accepting of boisterous, noisy behaviour and hence more 'child friendly' and more accepting and absorbing of the 'ADHD' like behaviour as 'normal'. At present there is a pressing need and scope for research looking into culture /ethnicity sensitive research instruments to explore this area further.

Issues in diagnosis

Attention Deficit Hyperactivity Disorder is the diagnostic category in DSM-IV (American Psychiatric Association

2000)⁴ with three main types: Hyperactive-Impulsive(HI), Inattentive(IA) and Combined type. While the last one (Combined type) is the most common, it along with the first (HI) are identified more frequently in boys just as the second (IA) is identified more in girls. In the International Classification (ICD-10) children with similar difficulties are diagnosed under Hyperkinetic disorder (WHO 1992)⁵. This is a more restrictive diagnostic system and hence leads to a lower prevalence of the disorder as it captures the more severely affected children and also excludes children with anxiety or mood disorders. A Diagnosis should not be made unless (a) there is impairment of function and (b) the behaviour is pervasive over at least two settings. There is no clear dividing line between normal hyperactivity and ADHD. All the same, when a child is at the severe end of the spectrum, there is no debate about the need to intervene medically. Issues in diagnosis are outlined in Table 2.

Table 2. Diagnosis

-Onset before age 7		
- Persistence for minimum of six months, with significant impairment in coping with occupational (school) or social demands.		
- Cut off and exclusion criteria apply.		
Inattention	Hyperactivity	Impulsivity
-Does not attend	-Fidgets	-Talks excessively
-Fails to finish tasks	-Leaves seat in class	-Blurts out answers
-Can't organise	-Runs/climbs excessively	-Cannot await turn
-Avoids sustained effort	-Cannot play/work quietly	-Interrupts others
-Loses things, 'forgetful'	-Always 'on the go'	-Intrudes on others
-Easily distracted-	-talks excessively*	

Differential diagnosis

Differential diagnoses are outlined in Table 3.

Table 3

ADHD OR SOMETHING ELSE
Pure ADHD
A normal child
Pure behavioural problem (O D D/ C D)
Adjustment disorder
Abused child
Parental fixed beliefs or mental health problems

Correspondence: Prof. KedarNath Dwivedi

Honorary Director, International Institute of Child and Adolescent Mental Health, Northampton General Hospital NHS Trust, Cliftonville, Northampton NN1 5BG, E-mail: k.dwivedi@londonmet.ac.uk

ADHD AND SOMETHING ELSE

Other psychiatric disorder
 Developmental disorder
 Global Learning Disability
 Other Medical disorders
 Psychosocial adversity
 ASD including Asperger's syndrome
 Specific Learning Difficulty or Global Learning Disability
 Post Traumatic Stress Disorder (PTSD)
 Emotional Disorder
 Substance Abuse

Management

In practice, a clinician needs to focus more on the needs of a child and family which are often complex and clinical co-morbidity (presence of multiple associated conditions in one child) and social adversity, which are very common. A multi-modal treatment programme must be individually customized, continually monitored and optimized. A basis for the main components is conceptualized in Fig 1. This should take into account the pathogenesis of various difficulties in a child and family over time leading up to the time of the multimodal assessment.

Figure 1. Pathogenesis and Multimodal management

This consists of a combined approach which includes and starts with:

Psycho-education

Psycho-education forms the basis of all treatments for ADHD. We need to create adequate opportunities for providing education for the family, child and teachers about the disorder and interventions required.

This includes an explanation of the nature of the developmental disorder. The child is not mad or just naughty. He 'cannot' do many things rather than 'would not' do those things. Poor impulse control can be explained as not having finely tuned brakes in a car which can have an accident even though it can be a fine car. Treatment can provide the child with 'better brakes that give him more control of his own

behaviour'. Narratives, stories and rituals can be of particular help⁶.

We also need to work with any resistance that we find in implementing appropriate interventions.

In some children it is like a developmental delay and they grow out of it by adulthood. In others, many symptoms (especially Inattention and Impulsivity) can persist, though hyperactivity often declines with age. At present it looks as if only 30 to 40% children outgrow it.

Enhancing Parenting Skills

As a part of psycho-education, it is important to explain that ADHD is not caused by bad parenting. In its pure form, it is a disorder that has a substantial genetically heritable component just like eye colour, skin colour, height are heritable.

Parents need help in appreciating the importance of looking at positives and strengths of their children who have ADHD e.g. energy, passion about pursuing their own interest, willingness to take risks (a characteristic that is valued and harnessed in some jobs).

They also need help in strengthening a positive relationship with the child and limiting negative parenting styles, as many parents are overwhelmed by a sense of negativity or guilt in relation to the child⁷.

They need to appreciate the value of and to become competent in establishing clear rules, praising the child often and without delay, being consistent with rules, positive and negative consequences.

They need to try to foresee problems but they do not need to be perfect! Staying relaxed and doing something nice for themselves are equally important.

Behaviour management

Effective interventions include behavioural therapy for the child and his or her family, in school as well as at home.

It requires identification of problem situations and precipitating factors and providing behaviour modelling, consistent and appropriate disciplinary strategies, employing immediate rewards for achieving targeted behaviours, using cost systems to reduce problem behaviours.

Social reinforcement is more effective and time out may need to be used as punishment for very serious problem behaviours.

Schooling

Making work interesting by breaking it into small pieces, using visual and auditory cues to remind the child to keep on task, rewards for reaching stepwise goals which lead to eventual completion of a major piece of work are some strategies.

In class, it may be helpful for the child to be in front. The child will need reminders, diary keeping skills to bring the right homework etc.

The classroom environment should aim to reduce distracting stimuli, and the lessons should be organised in such a way that the length of each task is shorter and less complex.

However, the structures, rewards, short tasks and positive experiences need to be increased

Many of the principles mentioned above under the subheading of 'Enhancing Parenting Skills' and 'Behaviour Management' would be applicable for the school setting as well.

Activity scheduling

The child will benefit from building up activities like karate, sports to burn up excess energy. Yoga or meditation will also be very useful to improve the child's stress bearing, resilience as well as improving attention and concentration.

Support Groups

Parents and children can benefit from support groups. These groups can have psycho education, social activities, advocacy, support network, attention training, self control and many other useful components⁸. For self help groups or support groups, one alternative may be for the professionals to help form these groups and then handover to parents so that they can take over the continued running and administration of the groups. Its important to anticipate that the initiation and forming and developing of these groups can be slow and arduous but well worth it once they become established .This may happen over years rather than months.

Psychopharmacology

Currently drug treatment of the child plays a central role in many cases. Some of the commonly used medications are listed in Table 4.

Table 4. Psychopharmacology

Medications- Stimulants

Methylphenidate Immediate Release (MPH-IR)

Ritalin (Methylphenidate IR) 10mg white tablets

Equasym (Methylphenidate IR) (5,10,20 mg tablets

ConcertaXL (MPH Extended Release-12 hours) 18, 36, 54 mg capsule-like bullet shaped tablets

Equasym XL(MPH Extended Release-8 hours) 10, 20, 30 mg Capsules

Dexedrine (Dexamphetamine)

- o 5mg tab (Rarely used)
- o Dose: Start 2.5 mg BD
- o May be useful in children with ADHD and epilepsy

Medications—Nonstimulants

Strattera (Atomoxetine)Capsules various strengths

- o Different mechanism
- o 24 hour control
- o Noncontrolled drug
- o Similar but less frequent and intense side-effects .Nausea more frequent.
- o Rarely liver dysfunction

Safe uses of such medications are pointed out in Table 5.

Table 5 . Side Effects

Common and/or Transient

Abdominal pains, headaches, tearfulness, lethargy.

Sleeplessness

Loss of appetite

HR, BP—Increase

Uncommon

Tics, psychosis, blood changes

Long term—Growth suppression

Long term tolerance and addiction - not reported

Efficacy of interventions

Psycho-pharmacotherapy is of proven short-term effects, but long-term effects are well documented for up to 2 years only. Parent management training is of proven short-

term effects and also of proven short- and long-term effects in children with oppositional disorder. Behavioural interventions at school are also of proven short-term effects. As regards Psychotherapy of patient, Self-management and social competence training are helpful; Self-instruction training is less successful (because of transfer problems) and therapies that are not behaviour-oriented have not been formally evaluated.

The findings from the MTA Study (Multimodal Treatment Study of Children with ADHD, a Multi-centre study by NIMH) include the following^{9, 10}:

Medication or combination treatment was significantly more effective than either psychosocial treatment or community physician referral.

A combination of medication and behavioural treatment showed greater efficacy than psychosocial/behavioural treatment alone.

In terms of parent satisfaction, the combined approach (behaviour treatment and medication) was rated best

In terms of symptom management and overall efficacy, the routine medical care in the community was the least effective regimen.

Specific considerations in Preschoolers

In preschoolers, it is essential to fully explore behavioural treatments

(e. g. parent training and play behaviour intervention) before starting pharmacotherapy and to be aware of the age restrictions for pharmacotherapy.

Other approaches

Cochrane Database of Systematic Reviews¹¹ has a protocol on therapeutic applications of meditation therapies including ADHD for example, the Santa Barbara Institute and UCLA's Mindful Attention Programme (MAP). Mindfulness training and meditation have been found to reduce attention and conduct or anger problems in children and adolescents^{12, 13}. Mindfulness-based parent training can help parents become more mindful in rearing their (disruptive) children and lessen the grip of automaticity in families with disruptive children¹⁴.

Special diets, dietary supplements, megavitamins, anti-motion sickness medication, & EEG biofeedback are used but not proven^{15, 16, 17}.

REFERENCES

1. Banhatti, R. (2004). Attention and Mental Health. In: Dwivedi, K.N. & Harper, P.B. (Eds) Promoting Emotional Wellbeing of Children and Adolescents and Preventing their Mental Ill Health: A Handbook. London: Jessica Kingsley
2. Dwivedi, K. N. & Banhatti, R. G. (2005). Attention Deficit/Hyperactivity Disorder and ethnicity. Archives of Diseases of Childhood, 90, 10-12.
3. Banhatti, R.G. & Bhate, S. (2002). Mental Health Needs of ethnic minority children. In: Dwivedi, K. N. (Ed) Second edition, London: Jessica Kingsley Publishers
4. American Psychiatric Association (2000). Diagnostic and Statistical Manual –IV (DSM-IV), Text Revision, Washington DC.
5. World Health Organization. (1992). International classification of diseases, tenth edition (ICD-10) Geneva, Switzerland.
6. Dwivedi, K.N. (Ed.) (1997). The Therapeutic Use of Stories. London: Routledge.
7. Douglas, J. (1997). Helping parents cope with hyperactive children in: Dwivedi, K.N. (Ed) Enhancing Parenting Skills: A Guide for Professionals Working with Parents. Chichester: John Wiley and Sons.
8. Dwivedi, K.N. (Ed.) (1993) Group Work with Children and Adolescents. London: Jessica Kingsley Publishers.
9. MTA Cooperative Group (1999a) A 14-month randomised clinical trial of treatment strategies for attention deficit/hyperactivity disorder. Archives of General Psychiatry, 56, 1073-1086
10. MTA Cooperative Group (1999b) Moderators and Mediators of treatment response for children with attention deficit/hyperactivity disorder. Archives of General Psychiatry, 56, 1088-1096.
11. Krisanaprakornkit, T. (2007). Meditation Therapies for ADHD. Cochrane Database of Systematic Reviews.
12. Semple, R. J., Lee, J. & Miller, L.f. Mindfulness-based cognitive therapy for children. in: R.A. Bear (Ed) Mindfulness-based treatment approaches; Clinician's guide to evidence base and applications. Amsterdam: Academic Press.
13. Harrison, L. J., Manocha, R. & Rubia, K. (2004). Sahaj Yoga meditation as a family treatment programme for children with Attention Deficit Hyperactivity Disorder. Clinical Child Psychology and Psychiatry, 9, 479-497.
14. Dumas, J. (2005) Mindfulness-based parent training: Strategies to lessen the grip of automaticity in families with disruptive children. Journal of Clinical Child and Adolescent Psychology, 34, 779-791.
15. Goldstein, S. & Ingersoll, B. (1992). Controversial treatments for children with attention deficit hyperactivity disorder. Chadder, Fall/ Winter, 1-4.
16. Richters, J. E., Arnold, L.E. & Jensen, P.S. (1995). NIMH Collaborative multisite multimodal treatment study of children with ADHD. 1. Background and rationale. Journal of the American Academy of Child and Adolescent Psychiatry, 34, 987-1000.
17. Jadad, A.R., Boyle, M., Cunningham, C., Kim, M. & Schachar, R. (1998). The treatment of attention deficit hyperactivity disorder: a evidence report. Agency for Healthcare Research and Quality, US Department of Health and Human Services, Rockville, M.D.
18. Websites: www.add.org, www.chadd.org, www.addis.co.uk