Elisabeth d'Ornano
Association
for Attention
Deficit-Hyperactivity Disorder

# ADHD

## A BRIEF GUIDE FOR PHYSICIANS

ADHD is one of the most frequent behaviour disorders in childhood (present in around 5-7% of children and around 3% of adults). It occurs more frequently in boys than in girls (3:1). It has a multiple factor aetiology, and it is influenced by environmental and genetic factors (70% inheritability).

The following are some of the most typical environmental factors:

~ Perinatal stress.

~ Exposure to tobacco (even before birth).

~ Hyper-stimulated environments.

~ Imbalanced nourishment.

~ Poorly structured and inconsistent environments.

~ Exposure to lead.

**DIAGNOSING** ADHD requires:

- a professional who is an expert in child development.
- enough time to evaluate the child and gather information on the child, the family and the school.

In recent years we have gone from a situation of infra-diagnosis of ADHD to a reversal of the situation, sometimes arriving at hasty diagnoses or ones that are exclusively based on attention difficulties or unrest, which are non-specific symptoms that may be due to other problems or pathologies.

The diagnosis of ADHD is not based on any technical tests (X-ray, electro-encephalogram, magnetic resonance or any other physical tests) but rather on a comprehensive *clinical history* and a rigorous *psychopathologic and psychopaedagogic exploration*. The diagnosis is based on:

- **Differential organic diagnosis**
- **Differential psychopaedagogic diagnosis**
- **Differential psychiatric diagnosis**

Scales and questionnaires only help to suspect the presence of ADHD, to estimate how serious it is, and to value its evolution.

## MAJOR SYMPTOMS

**IMPULSIVENESS. HYPERACTIVITY. INATTENTION**

Evident compared to most boys or girls their age.

Chronically present (since before school age).

In different areas (at home, at school, out in the street).

## OTHER SYMPTOMS

Difficulties in terms of:

- **Planning**
- **Organising themselves**
- **Setting priorities**
- **Estimating time**

And secondarily:

» **Failure at school**

» **Low self-esteem**

» **Problematic family relations and sometimes difficult social relations**

## WHAT PARENTS AND TEACHERS USUALLY NOTICE

### Inattention.

*"This child is absent-minded, forgetful, he doesn't listen, he won't pay attention, he loses everything, he is unable to do his homework by himself, takes a long time to do things that he knows how to do perfectly well, makes many silly mistakes, he can get an 8 or 2 over 10 in the same subject just two days apart, his performance is far below his potential, he could get better grades."*

~ They are distracted by external stimuli.

~ It is hard for them to store information in their head long enough to make a decision or perform a complex activity.

~ It is hard for them to do 'complex' mental tasks involving planning, organising, anticipating, etc. Alteration of the executive functions.

### Hyperactivity.

*"He won't sit still, he gets on your nerves, always tapping away or moving his leg, he can't do one thing at a time, he is unable to stay seated at the table at supper, he gets on and off the sofa all the time, he seems to have an engine inside him, he won't stop talking."*

~ They are always moving.

~ They are usually quite noisy.

~ It is hard for them to remain seated.

## Impulsiveness.

*"He says things without thinking, he puts his foot in it systematically, then he feels sorry, throws tantrums or answers bluntly, answers too soon, talks without being asked in class, interrupts others, is unable to wait in a queue, does his homework too fast and answers stumbling over his words, making silly mistakes without finishing reading the questions, we're always in hospital because he stumbles and falls, he acts like a jackass, always with some kind of cut or wound."*

~ They talk before thinking.

~ They usually regret behaviour that harms others or that shows disrespect.

~ They are usually good-natured though clumsy.

~ They may say things that are socially inappropriate.

~ They are sometimes rejected by their peers.

~ They are sometimes called 'clumsy', 'clown' or 'dunce'.

~ They are impatient.

~ They are imprudent and engage in risky behaviour.

~ They can be exposed to drugs as teenagers (because they are imprudent or because they are looking for something they don't have: calmness).

~ They may be promiscuous, without using sufficient protection measures.

~ They can suffer the effects of hasty decisions.

## DIFFERENTIAL DIAGNOSIS

» **Medical conditions that may cause similar symptoms:**

~ Sensorial difficulties (vision, hearing).

~ Sleep-related difficulties (lack of repairing sleep due to convulsion crises, apnoea, etc).

~ Neurological disorders, for instance epilepsy, especially absent spells.

~ General (systemic) pathologies, for instance allergies, malabsorption syndrome, hyperthyroidism, genetic syndromes, etc.

» **Other mental disorders**

~ Learning disorders (dyslexia, limited intelligence, etc.). This is the most frequent cause of an apparent hyperkinetic disorder that is not such.

~ Anxiety.

~ Depression.

~ Mania (bipolar disorder).

~ Reaction to a trauma or to important changes in life.

~ Psychotic disorder.

~ Drug abuse.

~ Ticks.

~ Development disorder (for instance Asperger's syndrome).

~ Mental retardation.

~ Genetic neuropaediatric disorders (Huntington's disease, Williams syndrome, etc.).

## THE ROLE OF THE PAEDIATRICIAN

~ Obtaining a complete medical history, starting from pregnancy and going through the different stages of development. If possible, interviewing the mother and father.

~ Exploring the child with enough time.

~ Discarding any underlying medical diagnoses (related to hearing, vision, etc.).

~ Obtaining information from the school with the parents' permission or through them, evaluating learning capacities and specific difficulties.

» **Pay special attention to:**

~ The typical symptoms (hyperactivity/inattention/impulsiveness) must be present in the child to a greater or lesser extent since *before the age of 7,* even though until then the problems caused were not serious.

~ The typical symptoms must be present at least *in two of the three environments* in which the child is present (at home, at school, out in the street).

~ If the problem seems to be present only at school, you can directly contact the psychodiagnosis or psychopaedagogic orientation service, or suggest that the parents do so.

~ If you suspect there is a problem in the family, you can contact the social services or directly with family assistance centres, where there are psychologists who are experienced in family therapy. Most Spanish provinces have at least one child and teenager psychiatry team within the National Health System.

~ If you suspect there is an added mental health problem, or if you lack the time or training to carry out a complete differential diagnosis (both organic and psychiatric), *derive the case to the child and teenager psychiatrist, or otherwise to the neuropaediatrician.* Most Spanish provinces have at least one child and teenager psychiatry team within the National Health System.

### » Monitoring

*Frequent dosage and monitoring seem to be one of the most important factors for the success of the pharmacological treatment.*

That is why the following is essential:

~ Be aware of the treatment and the typical secondary effects it can have.

~ *Be available for the patient.*

~ Try to *reinforce compliance with the therapy* (otherwise inform the specialist and the family).

~ *Monitor weight and height values,* comparing them to standard curves, as well as checking the child's arterial tension.

~ Have an *initial electrocardiogram* done and another one three months after the treatment has started, then every 6 months or even once a year after the third year of treatment.

~ In each visit take note of the *profile of potential secondary effects* of the medication that the child is being given.

~ Recommend a healthy lifestyle: diet, exercise, better communication of feelings, participation in leisure and recreational activities, etc.

~ The treatment is to be supported by factors known as mediators of the evolution of ADHD: especially positive relations with peers and an adequate family environment (low expression of emotion).

# MEDICATION

Traditionally ADHD has been treated with psychostimulants such as short-acting methylphenidate, but recently new drugs and new active principles have become available. The choice between the available medication will depend on the individual characteristics, the age and the needs of the child and the family and school situation. The drugs that are generally used in the treatment of ADHD are:

- Short-acting (*Rubifen*) or long-acting METHYLPHENIDATE (*Concerta, Medikinet*)
- ATOMOXETINE (*Strattera*)
- In other countries: DEXTROAMPHETAMINE and other amphetamine derivatives.

**METHYLPHENIDATE.** The most frequently used medication for ADHD in Spain. There are studies proving its efficacy, especially in initial stages and in very serious cases.

Short-acting methylphenidate: This formula has rapid effects, in less than an hour and usually lasting between 2 and 4 hours. It is spontaneously eliminated from the body in less than 12-24 hours. Generally it should be taken 2 or 3 times a day, in principle never later than 4 p.m.

Long-acting methylphenidate: The effects of just one pill last around 12 hours. This makes it easier to administer the medication because it can be taken just once a day.

None of the two formulas has proven to be more effective that the other one and the secondary effect profiles do not vary significantly. Methylphenidate is incompatible with IMAO antidepressants.

Secondary effects. We may observe with relative frequency: *loss of appetite and difficulty falling asleep.* Sometimes accompanied by *ticks, headache, abdominal pain, biting of the nails or fingers and even social withdrawal, loss of affection or saddening* (as if lost in their own inner world). In extreme cases psychotic symptoms have been described and even convulsion crises or non-specific alterations of the electrocardiogram.

Changes of sleeping patterns or appetite are usually managed by changing the doses or the time when the medication is taken, or by taking it after eating, increasing the calorie intake at breakfast or supper time.

In general the dose should not exceed 1 mg/kg/day.

Monitoring treatment with methylphenidate:

~ An *electrocardiogram* and the arterial tension should be taken before starting the pharmacological treatment and afterwards every three or six months during the first years of treatment. Subsequently it can be done once a year as long as the medication is being taken.

~ Take *the patient's weight and height every 3 to 6 months* (comparing the parameters to standard tables). If there is a loss of weight or height that might interfere with the child's growth, immediately inform the specialist.

Unless expressly indicated by the specialist, the treatment should not be suspended on weekends or during vacation periods. Methylphenidate is not addictive.

**ATOMOXETINE.** A drug in the antidepressant family (in pharmacological terms) although it does not have antidepressant effects. Instead it helps to alleviate ADHD symptoms. It is effective following two weeks of uninterrupted treatment and it should not be interrupted suddenly.

Secondary effects are usually short-term and they appear only at the beginning. The most frequent effects are *nausea, abdominal discomfort, dizziness, increase of cardiac frequency and loss of appetite* (especially at the beginning). It is subsequently not associated to weight loss. There are studies showing its efficacy in the treatment of ADHD and it does not generate addiction.

In principle it is not incompatible with any medication. It is usually used as a secondary recourse when methylphenidate is not well tolerated or it has not been shown to be effective, although in certain cases it can be used as a frontline drug.

Other secondary drugs used in the treatment are BUPROPION, CLONIDINA, GUANFACINA, PEMOLINA, and even TRICYCLIC ANTIDEPRESSANTS. Their efficacy is doubtful and they are used most often in cases of comorbidity.

**It is not always necessary to use medication in cases where there is an ADHD diagnosis.** We must consider how serious the symptoms are, the age at which it is diagnosed and the parents' possibilities in terms of giving their child adequate support.

# FINAL SUMMARY

- **Be receptive: do not play down the importance of complaints, even though parents may seem to be exaggerating.**
- **Gather information from the child, the family and the school.**
- **Put together a complete clinical history, starting from pregnancy and throughout the child's development.**
- **When diagnosing ADHD, the typical symptoms must be present before the age of 7 and at least in two of three environments (at home, at school, out in the street).**
- **Do not jump the gun in the diagnosis, a second visit is often essential.**
- **If you suspect there might be a cognitive deficiency, ask for a psychopaedagogic report.**
- **If the problem seems to be apparent only at school, contact the school directly or through the parents. The problem may be due to inadequate location at school or a learning disorder.**

» **If the problem occurs only in the family setting, explore what difficulties may exist in the family; you can also contact family help centres or social services if the problem seems severe.**

» **Recommend a healthy lifestyle: diet, exercise, better communication of feelings, participation in leisure and recreational activities, etc.**

When visiting children receiving pharmacological treatment:

~ Review the treatment and the typical secondary effects.

~ Reinforce compliance with the therapy.

~ Monitor weight and height values, comparing them to standard curves.

~ Take the arterial tension at the beginning, together with an electrocardiogram, and then have more electrocardiograms done subsequently.

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