NHS
Essex Partnership University
NHS Foundation Trust

SECTION 6: TREATMENT OF ADHD

Formulary and Prescribing Guidelines

6.1 Introduction

Attention Deficit Hyperactivity Disorder (ADHD) is a neurobiological condition. The core symptoms are hyperactivity, impulsivity and inattention which may lead to educational and behavioural difficulties. The condition is often associated with learning difficulties, communication and motor co-ordination problems. Stimulant and other medications are recognised as part of the multi-modal management approach and help to improve concentration, reduce impulsivity and reduce hyperactivity.

This guidance is not intended to be prescriptive and should be amended to the individual client and their circumstances. This includes advice and support for family and teachers in addition to specific psychological treatments for patients (such as behavioural therapy). It is worth noting that whilst these wider services are desirable, any shortfall in provision should not be used as a reason for delaying the appropriate use of medication. Treatment and care should take into account the individual's needs and preferences. Good communication across all parties involved is essential for a treatment plan to be successful.

6.2 Treatment choice

Children under 5 years

Medication for pre-school children is not recommended. Parents should be offered group-based parent-training/education programmes as first line treatment[1]**.**

Children aged 5 years and over and young people

Offer medication for children aged 5 years and over and young people only if:

- their ADHD symptoms are still causing a persistent significant impairment in at least one domain after environmental modifications have been implemented and reviewed
- they and their parents and carers have discussed information about ADHD
- a baseline assessment has been carried out

See the recommendations on medication below.

ADHD frequently presents with other psychiatric conditions such as conduct disorder, oppositional defiant disorder, depression, anxiety disorders, tics and tourettes syndrome. These need to be identified during the initial assessment and appropriate management strategies offered which may include other medication. Many patients with ADHD (particularly during early adolescence) do not like taking regular medication and sometimes feel this is a punishment for their perceived disruptive behaviour. During this time professionals need to give a clear and consistent message to the patient (and family) about the progress the client is making. Using simple drug regimens, for example, once daily modified release doses may be useful to support adherence in such circumstances.

Adults

Offer medication to adults with ADHD if their ADHD symptoms are still causing a significant impairment in at least one domain after environmental modifications have been implemented and reviewed. See the recommendations on medication choice below.

Consider non-pharmacological treatment for adults with ADHD who have:

- made an informed choice not to have medication
- difficulty adhering to medication
- found medication to be ineffective or cannot tolerate it.

6.3 NICE Clinical Guidelines – MEDICATION

All medication for ADHD should only be initiated by a healthcare professional with training and expertise in diagnosing and managing ADHD. Healthcare professionals initiating medication for ADHD should:

- be familiar with the pharmacokinetic profiles of all the short- and long-acting preparations available for ADHD
- ensure that treatment is tailored effectively to the individual needs of the child, young person or adult
- take account of variations in bioavailability or pharmacokinetic profiles of different preparations to avoid reduced effect or excessive adverse effects

Baseline assessment

Before starting medication for ADHD, people with ADHD should have a full assessment, which should include:

- a review to confirm they continue to meet the criteria for ADHD and need treatment
- a review of mental health and social circumstances, including:
- presence of coexisting mental health and neurodevelopmental conditions
- current educational or employment circumstances
- risk assessment for substance misuse and drug diversion
- care needs

a review of physical health, including:

- a medical history, taking into account conditions that may be contraindications for specific medicines
- current medication

- height and weight (measured and recorded against the normal range for age, height and sex)
- baseline pulse and blood pressure (measured with an appropriately sized cuff and compared with the normal range for age)
- a cardiovascular assessment

An electrocardiogram (ECG) is not needed before starting stimulants, atomoxetine or guanfacine, unless the person has any of the features listed below or a co-existing condition that is being treated with a medicine that may pose an increased cardiac risk. [1]

Refer for a cardiology opinion before starting medication for ADHD if any of the following apply:

- history of congenital heart disease or previous cardiac surgery
- history of sudden death in a first-degree relative under 40 years suggesting a cardiac disease
- shortness of breath on exertion compared with peers
- fainting on exertion or in response to fright or noise
- palpitations that are rapid, regular and start and stop suddenly (fleeting occasional bumps are usually ectopic and do not need investigation)
- chest pain suggesting cardiac origin
- signs of heart failure
- a murmur heard on cardiac examination
- blood pressure that is classified as hypertensive for adults (see NICE's guideline on hypertension in adults).

Refer to a paediatric hypertension specialist before starting medication for ADHD if blood pressure is consistently above the 95th centile for age and height for children and young people.

6.4 NICE Clinical Guidelines –Children aged 5 years and over and young people

NG87, published March 2018. Attention Deficit Hyperactivity Disorder: diagnosis and management[1]

Before starting any treatment for ADHD, discuss the following with the person, and their family or carers as appropriate, encouraging children and young people to give their own account of how they feel:

- the benefits and harms of non-pharmacological and pharmacological treatments (for example, the efficacy of medication compared with no treatment or non-pharmacological treatments, potential adverse effects and non-response rates)
- the importance of adherence to treatment and any factors that may affect this (for example, it may be difficult to take medication at school or work, or to remember appointments).
- Record the person's preferences and concerns in their treatment plan.
- Reassure people with ADHD, and their families or carers as appropriate, that they can revisit decisions about treatments.

Dietary advice

Do not advise elimination of artificial colouring and additives from the diet as a generally applicable treatment for children and young people with ADHD.

Do not advise or offer dietary fatty acid supplementation for treating ADHD in children and young people.

Advise the family members or carers of children with ADHD that there is no evidence about the long‑term effectiveness or potential harms of a 'few food' diet for children with ADHD, and only limited evidence of short‑term benefits.

Drug treatment

Note on prescribing unlicensed medicines

At the time of publication of NICE CG87 (March 2018), medicines used for the treatment of ADHD did not have a UK marketing authorisation for use in all indications. The prescriber should follow relevant professional guidance, taking full responsibility for the decision. Informed consent should be obtained and documented. See the General Medical Council's Prescribing guidance: prescribing unlicensed medicines for further information.

The recommendations below update NICE's technology appraisal guidance on methylphenidate, atomoxetine and dexamfetamine for ADHD in children and adolescents (TA98).

At the time of publication (March 2018), medicines used for the treatment of ADHD did not have a UK marketing authorisation for use in children aged 5 years and under for this indication.

Offer methylphenidate (either short or long acting) as the first line pharmacological treatment for children aged 5 years and over and young people with ADHD.

At the time of publication (March 2018), methylphenidate did not have a UK marketing authorisation for this indication in children aged 5 years or under.

Consider switching to lisdexamfetamine for children aged 5 years and over and young people who have had a 6 week trial of methylphenidate at an adequate dose and not derived enough benefit in terms of reduced ADHD symptoms and associated impairment.

At the time of publication (March 2018), lisdexamfetamine did not have a UK marketing authorisation for this indication in children aged 5 years.

Consider dexamfetamine for children aged 5 years and over and young people whose ADHD symptoms are responding to lisdexamfetamine but who cannot tolerate the longer effect profile.

At the time of publication (March 2018), dexamfetamine was only licensed for the treatment of ADHD in children and adolescents aged 6 to 17 years when response to previous methylphenidate treatment is considered clinically inadequate. Dexamfetamine is not licensed for the treatment of ADHD in children and adolescents aged 5 to 17 years who have responded to, but are intolerant to lisdexamfetamine.

Offer atomoxetine or guanfacine to children aged 5 years and over and young people if:
they cannot tolerate methylphenidate or lisdexamfetamine or their symptoms have not responded to separate 6 week trials of lisdexamfetamine and methylphenidate, having considered alternative preparations and adequate doses.

At the time of publication (March 2018), atomoxetine or guanfacine did not have a UK marketing authorisation for this indication in children aged 5 years.

6.5 NICE Clinical Guidelines – ADULTS

NG87, published March 2018. Attention Deficit Hyperactivity Disorder: diagnosis and management[1]

Drug treatment

Note on prescribing unlicensed medicines

At the time of publication of NICE CG87 (March 2018), medicines used for the treatment of ADHD did not have a UK marketing authorisation for use in all indications. The prescriber should follow relevant professional guidance, taking full responsibility for the decision. Informed consent should be obtained and

documented. See the General Medical Council's Prescribing guidance: prescribing unlicensed medicines for further information.

Offer lisdexamfetamine or methylphenidate as first-line pharmacological treatment for adults with ADHD.

At the time of publication (March 2018), lisdexamfetamine was licensed for use in adults with symptoms of ADHD that pre-existed in childhood.

At the time of publication (March 2018), not all preparations of methylphenidate had a UK marketing authorisation for treating symptoms of ADHD in adults.

Consider switching to lisdexamfetamine for adults who have had a 6 week trial of methylphenidate at an adequate dose but have not derived enough benefit in terms of reduced ADHD symptoms and associated impairment.

Consider switching to methylphenidate for adults who have had a 6 week trial of lisdexamfetamine at an adequate dose but have not derived enough benefit in terms of reduced ADHD symptoms and associated impairment.

Consider dexamfetamine[10] for adults whose ADHD symptoms are responding to lisdexamfetamine but who cannot tolerate the longer effect profile.

At the time of publication (March 2018), dexamfetamine did not have a UK marketing authorisation for this indication in adults.

Offer atomoxetine to adults if:

- they cannot tolerate lisdexamfetamine or methylphenidate or
- their symptoms have not responded to separate 6 week trials of lisdexamfetamine and methylphenidate, having considered alternative preparations and adequate doses.

At the time of publication (March 2018), atomoxetine was licensed for use in adults with symptoms of ADHD that pre-existed in childhood.

6.6 NICE Clinical Guidelines – FURTHER MEDICATION CHOICES

Obtain a second opinion or refer to a tertiary service if ADHD symptoms in a child aged 5 years or over, a young person or adult are unresponsive to one or more stimulants and one non-stimulant.

Do not offer any of the following medication for ADHD without advice from a tertiary ADHD service:

- guanfacine for adults
- clonidine for children with ADHD and sleep disturbance, rages or tics
- atypical antipsychotics in addition to stimulants for people with ADHD and coexisting pervasive aggression, rages or irritability
- medication not included in recommendations in sections 6.4 (children aged 5 years and over and young people) and 6.5 (adults)

At the time of publication (March 2018), guanfacine did not have a UK marketing authorisation for this indication.

At the time of publication (March 2018), clonidine did not have a UK marketing authorisation for this indication.

6.7 NICE Clinical Guidelines – MEDICATION CHOICE – People with coexisting conditions

Offer the same medication choices to people with ADHD and anxiety disorder, tic disorder or autism spectrum disorder as other people with ADHD.

For children aged 5 years and over, young people and adults with ADHD experiencing an acute psychotic or manic episode:

- stop any medication for ADHD
- consider restarting or starting new ADHD medication after the episode has resolved, taking into account the individual circumstances, risks and benefits of the ADHD medication.

6.8 NICE Clinical Guidelines – Consideration when prescribing ADHD medication

When prescribing stimulants for ADHD, consider modified-release once-daily preparations for the following reasons:

- convenience
- improving adherence
- reducing stigma (because there is no need to take medication at school or in the workplace)
- reducing problems of storing and administering controlled drugs at school
- the risk of stimulant misuse and diversion with immediate-release preparations
- their pharmacokinetic profiles.

Immediate-release preparations may be suitable if more flexible dosing regimens are needed, or during initial titration to determine correct dosing levels.

When prescribing stimulants for ADHD, be aware that effect size, duration of effect and adverse effects vary from person to person.

Consider using immediate- and modified-release preparations of stimulants to optimise effect (for example, a modified-release preparation of methylphenidate in the morning and an immediate-release preparation of methylphenidate at another time of the day to extend the duration of effect).

Be cautious about prescribing stimulants for ADHD if there is a risk of diversion for cognitive enhancement or appetite suppression.

Do not offer immediate-release stimulants or modified-release stimulants that can be easily injected or insufflated if there is a risk of stimulant misuse or diversion.

Prescribers should be familiar with the requirements of controlled drug legislation governing the prescription and supply of stimulants. See NICE's guideline on controlled drugs.

Dose titration

During the titration phase, ADHD symptoms, impairment and adverse effects should be recorded at baseline and at each dose change on standard scales by parents and teachers, and progress reviewed regularly (for example, by weekly telephone contact) with a specialist.

Titrate the dose against symptoms and adverse effects in line with the BNF or BNF for Children until dose optimisation is achieved, that is, reduced symptoms, positive behaviour change, improvements in education, employment and relationships, with tolerable adverse effects.

Ensure that dose titration is slower and monitoring more frequent if any of the following are present in people with ADHD:

- neurodevelopmental disorders (for example, autism spectrum disorder, tic disorders, learning disability [intellectual disability])
- mental health conditions (for example, anxiety disorders [including obsessive–compulsive disorder], schizophrenia or bipolar disorder, depression, personality disorder, eating disorder, post-traumatic stress disorder, substance misuse)
- physical health conditions (for example, cardiac disease, epilepsy or acquired brain injury).

Shared care for medication

After titration and dose stabilisation, prescribing and monitoring of ADHD medication should be carried out under Shared Care Protocol arrangements with primary care.

6.9 NICE Clinical Guidelines – Consideration when prescribing ADHD medication

Maintenance and monitoring

Monitor effectiveness of medication for ADHD and adverse effects, and document in the person's notes.

Encourage people taking medication for ADHD to monitor and record their adverse effects, for example, by using an adverse effect checklist.

Consider using standard symptom and adverse effect rating scales for clinical assessment and throughout the course of treatment for people with ADHD.

Ensure that children, young people and adults receiving treatment for ADHD have review and follow up according to the severity of their condition, regardless of whether or not they are taking medication.

Height and weight

For people taking medication for ADHD:

- measure height every 6 months in children and young people
- measure weight every 3 months in children 10 years and under
- measure weight at 3 and 6 months after starting treatment in children over 10 years and young people, and every 6 months thereafter, or more often if concerns arise
- measure weight every 6 months in adults
- plot height and weight of children and young people on a growth chart and ensure review by the healthcare professional responsible for treatment.

If weight loss is a clinical concern, consider the following strategies:

- taking medication either with or after food, rather than before meals
- taking additional meals or snacks early in the morning or late in the evening when stimulant effects have worn off
- obtaining dietary advice
- consuming high-calorie foods of good nutritional value
- taking a planned break from treatment
- changing medication.

If a child or young person's height over time is significantly affected by medication (that is, they have not met the height expected for their age), consider a planned break in treatment over school holidays to allow 'catch up' growth.

Consider monitoring BMI of adults with ADHD if there has been weight change as a result of their treatment, and changing the medication if weight change persists.

Cardiovascular
Monitor heart rate and blood pressure and compare with the normal range for age before and after each dose change and every 6 months.

Do not offer routine blood tests (including liver function tests) or ECGs to people taking medication for ADHD unless there is a clinical indication.

If a person taking ADHD medication has sustained resting tachycardia (more than 120 beats per minute), arrhythmia or systolic blood pressure greater than the 95th percentile (or a clinically significant increase) measured on 2 occasions, reduce their dose and refer them to a paediatric hypertension specialist or adult physician.

If a person taking guanfacine has sustained orthostatic hypotension or fainting episodes, reduce their dose or switch to another ADHD medication.

Tics
If a person taking stimulants develops tics, think about whether:

- the tics are related to the stimulant (tics naturally wax and wane) and
- the impairment associated with the tics outweighs the benefits of ADHD treatment.

If tics are stimulant related, reduce the stimulant dose, or consider changing to guanfacine (in children aged 5 years and over and young people only), atomoxetine, clonidine, or stopping medication.

At the time of publication (March 2018), atomoxetine was licensed for use in adults with symptoms of ADHD that pre-existed in childhood.

At the time of publication (March 2018), clonidine did not have a UK marketing authorisation for this indication.

Clonidine should only be considered for people under 18 years after advice from a tertiary ADHD service.

Sexual dysfunction
Monitor young people and adults with ADHD for sexual dysfunction (that is, erectile and ejaculatory dysfunction) as potential adverse effects of atomoxetine.

Seizures
If a person with ADHD develops new seizures or a worsening of existing seizures, review their ADHD medication and stop any medication that might be contributing to the seizures.

After investigation, cautiously reintroduce ADHD medication if it is unlikely to be the cause of the seizures.

Sleep
Monitor changes in sleep pattern (for example, with a sleep diary) and adjust medication accordingly.

Worsening behaviour
Monitor the behavioural response to medication, and if behaviour worsens adjust medication and review the diagnosis.

Stimulant diversion
Healthcare professionals and parents or carers should monitor changes in the potential for stimulant misuse and diversion, which may come with changes in circumstances and age.

6.10 NICE Clinical Guidelines – Adherence to treatment

Use this guideline with NICE's guideline on medicines adherence to improve the care for adults with ADHD. The principles also apply to children and young people.

Be aware that the symptoms of ADHD may lead to people having difficulty adhering to treatment plans (for example, remembering to order and collect medication).

Ensure that people are fully informed of the balance of risks and benefits of any treatment for ADHD and check that problems with adherence are not due to misconceptions (for example, tell people that medication does not change personality).

Encourage the person with ADHD to use the following strategies to support adherence to treatment:

- being responsible for their own health, including taking their medication as needed
- following clear instructions about how to take the medication in picture or written format, which may include information on dose, duration, adverse effects, dosage schedule (the instructions should stay with the medication, for example, a sticker on the side of the packet)
- using visual reminders to take medication regularly (for example, apps, alarms, clocks, pill dispensers, or notes on calendars or fridges)
- taking medication as part of their daily routine (for example, before meals or after brushing teeth)
- attending peer support groups (for both the person with ADHD and for the families and carers).

Encourage parents and carers to oversee ADHD medication for children and young people.

6.11 NICE Clinical Guidelines – Review of medication and discontinuation

A healthcare professional with training and expertise in managing ADHD should review ADHD medication at least once a year and discuss with the person with ADHD (and their families and carers as appropriate) whether medication should be continued. The review should include a comprehensive assessment of the:

- preference of the child, young person or adult with ADHD (and their family or carers as appropriate)
- benefits, including how well the current treatment is working throughout the day
- adverse effects
- clinical need and whether medication has been optimised
- impact on education and employment
- effects of missed doses, planned dose reductions and periods of no treatment
- effect of medication on existing or new mental health, physical health or neurodevelopmental conditions
- need for support and type of support (for example, psychological, educational, social) if medication has been optimised but ADHD symptoms continue to cause a significant impairment.

Encourage people with ADHD to discuss any preferences to stop or change medication and to be involved in any decisions about stopping treatments.

Consider trial periods of stopping medication or reducing the dose when assessment of the overall balance of benefits and harms suggests this may be appropriate. If the decision is made to continue medication, the reasons for this should be documented.

References

1. NICE NG87, published March 2018. Last updated: September 2019. Attention Deficit Hyperactivity Disorder: Diagnosis and management https://www.nice.org.uk/guidance/ng87. Accessed 29/1/2020.