NHS Greater Glasgow & Clyde
Mental Health Services
Prescribing Management Group

Treatment of Attention Deficit and Hyperactivity Disorder (ADHD)

Background

Over recent years there has been a large increase in prescribing for ADHD in both children and adults. Recent supply problems have highlighted a need to provide guidance on pharmacological management of this patient group for prescribers.

Treatment choices

1st line treatment for all patients: methylphenidate

2nd line treatment for all patients: atomoxetine, guanfacine or lisdexamfetamine

Methylphenidate Modified Release (MR)

Xaggitin XL is the GGC formulary preferred formulation.

Product	Starting dose (mg)	Maximum licensed dose* (mg)		Dose escalation	Release profile (IR:MR)	Duration of action (hours)
		Adult	Child (6-17 years)			
Xaggitin XL	18mg	72	54	18mg weekly	22:78	12
Delmosart MR	18mg	54	54	18mg weekly	22:78	12
Concerta XL	18mg	72	54	18mg weekly	22:78	12
Equasym XL	10mg	60	60	5-10mg weekly	30:70	8
Medikinet XL	10mg	80	60	5-10mg weekly	50:50	8

*Higher doses are prescribed under specialist supervision.

Contraindications:

- Glaucoma
- Hyperthyroidism, thyrotoxicosis or phaeochromocytoma
- During treatment with non-selective, irreversible monoamine oxidase (MAO) inhibitors, or within a minimum of 14 days of discontinuing those drugs, due to the risk of hypertensive crisis
- Diagnosis or history of severe depression, anorexia nervosa/anorexic disorders, suicidal tendencies, psychotic symptoms, severe mood disorders, mania, schizophrenia, psychopathic/borderline personality disorder, or severe and episodic (Type I) Bipolar (affective) Disorder (that is not well-controlled)
- Pre-existing cardiovascular disorders including severe hypertension, heart failure, arterial occlusive disease, angina, haemodynamically significant congenital heart disease, cardiomyopathies, myocardial infarction, potentially life-threatening arrhythmias and channelopathies (disorders caused by the dysfunction of ion channels)
- Pre-existing cerebrovascular disorders cerebral aneurysm, vascular abnormalities including vasculitis or stroke

Adverse effects- (see SPC for full details):

Very common: Headache, nervousness and insomnia.

Common: Abdominal pain, nausea and vomiting, drowsiness, dizziness, dyskinesia, rash and dry mouth, decreased appetite, changes in BP and heart rate (usually increased).

Less common: Anger, blurred vision, apathy, confusion, tics, worsening of pre-existing tics, psychotic disorders and mood changes.

Equivalent dosing**:**

IR	Xaggitin XL (mg)	Delmosart MR (mg)	Concerta XL (mg)	Equasym XL (mg)	Medikinet XL (mg)
5	-	-	-	-	5
10	-	-	-	10	10
15	18	18	18	-	15
20	-	-	-	20	20
25	-	-	-	-	25
30	36	36	36	30	30
40	-	-	-	40	40
45	54	54	54	-	45
50	-	-	-	50	50
60	72	72	72	60	60
90	108	108	108	90	90

XL/MR: modified release. IR: immediate release

Withdrawing treatment:

Can be stopped abruptly with no need for gradual reduction.

Lisdexamfetamine

Starting dose: 30mg daily in the morning. In patients under the age of 18, or patients who have shown sensitivity to ADHD medication side effects in the past, a starting dose of 20mg may be considered

Dose escalation: 10-20mg weekly

Maximum dose: 70mg daily, adults and children (6-17 years)

Contraindications:

- Symptomatic cardiovascular disease including moderate to severe hypertension and advanced arteriosclerosis structural cardiac abnormalities
- Hyper excitability or agitated states
- Hyperthyroidism, thyrotoxicosis
- Glaucoma
- During or for 14 days after treatment with an MAO inhibitor

Adverse effects (see SPC for full details):

Very common: decreased appetite, weight decreased, insomnia, and headache.

Common: Aggression (especially in children), dry mouth, diarrhoea, nausea, vomiting, tachycardia, irritability, fatigue

Uncommon: agitation, dysphoria, buxism, mania, hallucination, dyskinesia, mydriasis, blood pressure increased.

Withdrawing treatment:

Can be stopped abruptly with no need for gradual reduction.

Atomoxetine

Starting dose: Paediatric population (6-17 years) <70kg- total daily dose of approximately 0.5 mg/kg.

Paediatric population (6-17 years) >70kg and Adults- 40mg daily in the morning.

The following table is a guide but appropriate dosing should be checked for individual patients.

Approximate patient weight	Approximate starting dose	Approximate maintenance dose
20kg	10mg	18mg (22.5mg by weight)
25kg	10mg (12.5mg by weight)	25mg (30mg by weight)
30kg	10mg (15mg by weight)	25mg (36mg by weight)
35kg	10mg (17.5mg by weight)	40mg (42mg by weight)
40kg	18mg (20mg by weight)	40mg (48mg by weight)
45kg	18mg (22.5mg by weight)	40mg (54mg by weight)
50kg	25mg	60mg
55kg	25mg (27.5mg by weight)	60mg (66mg by weight)
60kg	25mg (30mg by weight)	60mg (72mg by weight)
65kg	25mg (32.5mg by weight)	60mg (78mg by weight)

Dose escalation: Dose increases should be at minimum weekly intervals according to clinical response and tolerability.

Maximum dose: 100mg daily.

Contraindications:

- Hypersensitivity to the active substance or to any of the excipients
- During or for 14 days after treatment with an MAO inhibitor. MAOI should not be initiated within 2 weeks after discontinuing atomoxetine.
- Narrow angle glaucoma
- Severe cardiovascular or cerebrovascular disorders. Severe cardiovascular disorders may include severe hypertension, heart failure, arterial occlusive disease, angina, haemodynamically significant congenital heart disease, cardiomyopathies, myocardial infarction, potentially life-threatening arrhythmias and channelopathies

(disorders caused by the dysfunction of ion channels). Severe cerebrovascular disorders may include cerebral aneurysm or stroke.
- Phaeochromocytoma or a history of phaeochromocytoma

Adverse effects (see SPC for full details):

Very common: Headache, abdominal pain, somnolence, nausea, vomiting, appetite decreased, blood pressure increased, heart rate increased.

Common: Dizziness, insomnia, constipation, fatigue, mood changes including irritability, depression, anxiety.

Uncommon: Suicide related events, aggression, hostility, and emotional lability, tremor, syncope, tachycardia, migraines, QT prolongation, blurred vision.

Withdrawing treatment:

Can be stopped abruptly in cases of significant adverse effects as no distinct withdrawal symptoms have been described. Otherwise, can be tapered off over a suitable time period.

Guanfacine

Starting dose: 1mg daily.

Dose escalation: No more than 1mg per week.

Maximum dose: Maximum dose should not exceed 0.12mg/kg.

Age	Weight (kg)	Maximum dose
6-12	≥25	4mg
13-17	34 to 41.4	4mg
13-17	41.5 to 49.5	5mg
13-17	49.5 to 58.4	6mg
13-17	≥58.5	7mg
Adult*	≥58.5	7mg

*Unlicensed

Dose should be reduced by half if concurrent use with moderate or potent inhibitors of CYP3A4 and ciprofloxacin.

Contraindications:

- Hypersensitivity to the active substance or to any of the excipients

Adverse effects (see SPC for full details):

Very common: Headache, somnolence, abdominal pain, fatigue

Common: Decreased appetite, depression, anxiety, insomnia, nightmares, dizziness, sedation, heart rate decreased, blood pressure decrease, nausea, vomiting, diarrhoea, irritability, rash

Uncommon: Agitation, aggression, hallucinations, convulsion, loss of consciousness, dyspepsia, tachycardia, pruritus.

Withdrawing treatment:

Must be tapered with decrements of no more than 1 mg every 3 to 7 days, and blood pressure and pulse should be monitored to minimise potential withdrawal effects, in particular increases in blood pressure and heart rate.

Pregnancy and breastfeeding

No medications for treatment of ADHD are recommended for use in pregnancy or breastfeeding. For further information refer to individual SPCs or BUMPS website.

Monitoring requirements

Blood pressure & pulse: Baseline, before and after dose changes, once stable 6 monthly.

Weight: 6 monthly

Height: 6 monthly for children and adolescents with growth chart completion.

Mental health status: Assess for development or deterioration of pre-existing conditions at each dose change, at each visit and 6 monthly.

ECG: Baseline and after dose changes are only necessary in patients with a history of congenital prolonged QTc syndrome or previous drug induced prolonged QTc.

Useful resources

Choice and medication offers a wide range of patient information leaflets for mental health conditions and the medication used to treat them.

Crisis Counselling (counselling service that works with people to achieve better mental health)

Cruse Scotland (bereavement support)

The Spark - Igniting Change (charity that provides counselling and mental health support services)