

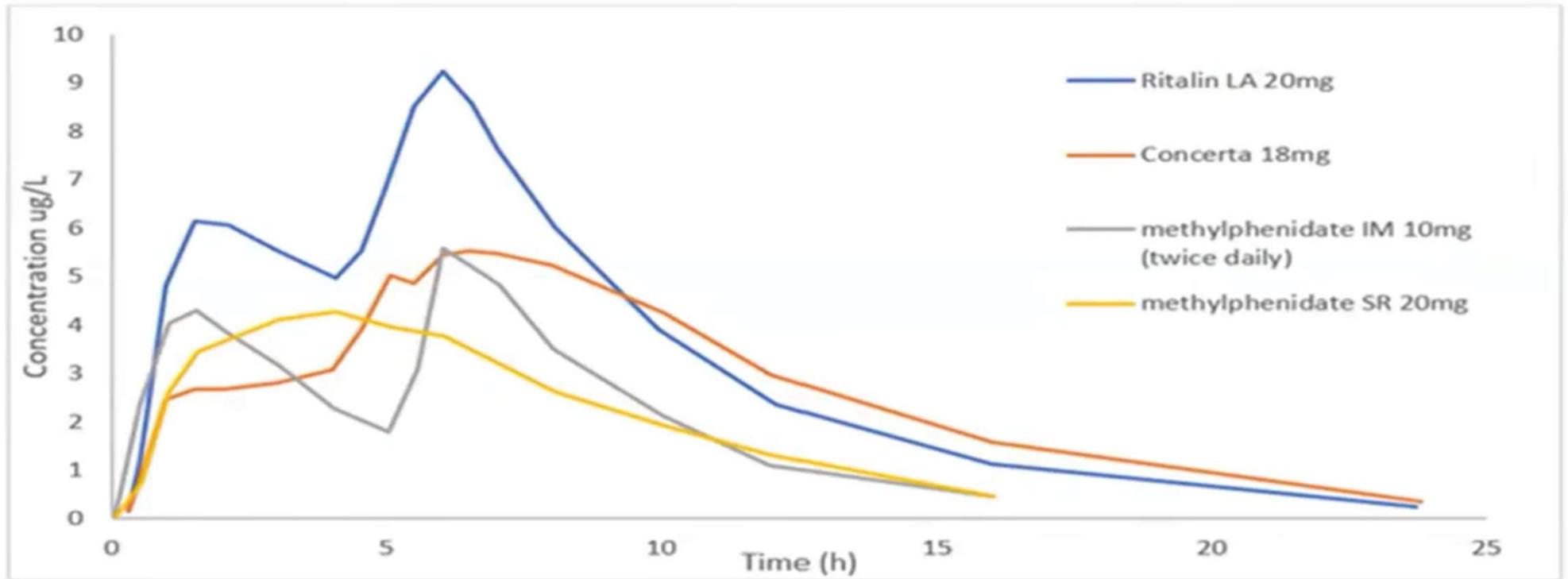
4.4 Medicines used for attention deficit hyperactivity disorder (ADHD)

Non-stimulants

Treatment with a non-stimulant may be considered when psychostimulants are contra-indicated, not tolerated, or not wanted. A non-stimulant may also be considered when there is a significant risk of misuse of psychostimulants, or for those who do not respond adequately to psychostimulant medication, although they are generally less effective. Occasionally they may also be offered as adjuncts to the psychostimulants, although monotherapy is preferred whenever possible.

Atomoxetine, a selective noradrenergic reuptake inhibitor, is the only non-stimulant approved in New Zealand for the treatment of ADHD in children aged 6 years and over. Unlike psychostimulants the clinical benefits of atomoxetine may not be evident for up to 12 weeks. It is important to discuss expected time frame of response and the possibility of earlier adverse effects with the child and their carers. Adverse effects are common at the start of treatment (particularly nausea and drowsiness), these generally improve over a few weeks. Treatment should be initiated with a small dose and titrated slowly to improve tolerability. Children and their carers should be warned of the possibility of suicidal ideation (see [Suicidal ideation and behaviour with atomoxetine \(Strattera\)](#) Prescriber Update June 2014) as well as liver disease, including how to recognise symptoms and to seek prompt medical attention in case of abdominal pain, unexplained nausea, malaise, darkening of the urine, or jaundice.

Clonidine, an alpha-2 agonist, may be effective for the core symptoms of ADHD, however the lack of an oral extended-release preparation in New Zealand limits its usefulness. Clonidine is associated with significant somnolence and therefore may occasionally be used under specialist advice to assist with sleep disturbances in children with ADHD.



Adapted from Markowitz et al, *Clin Pharmacokinet*. 2003;42(4):393-401; and Patrick KS et al, *Biopharmaceutics & Drug Disposition*. 1989; Mar-Apr;10(2):165-71.
 IM = immediate release
 SR= sustained release

DR David Codyre
 Consultant Psychiatrist

The thinking...



“Anxiety is commonly reported as a side effect of psychostimulant”

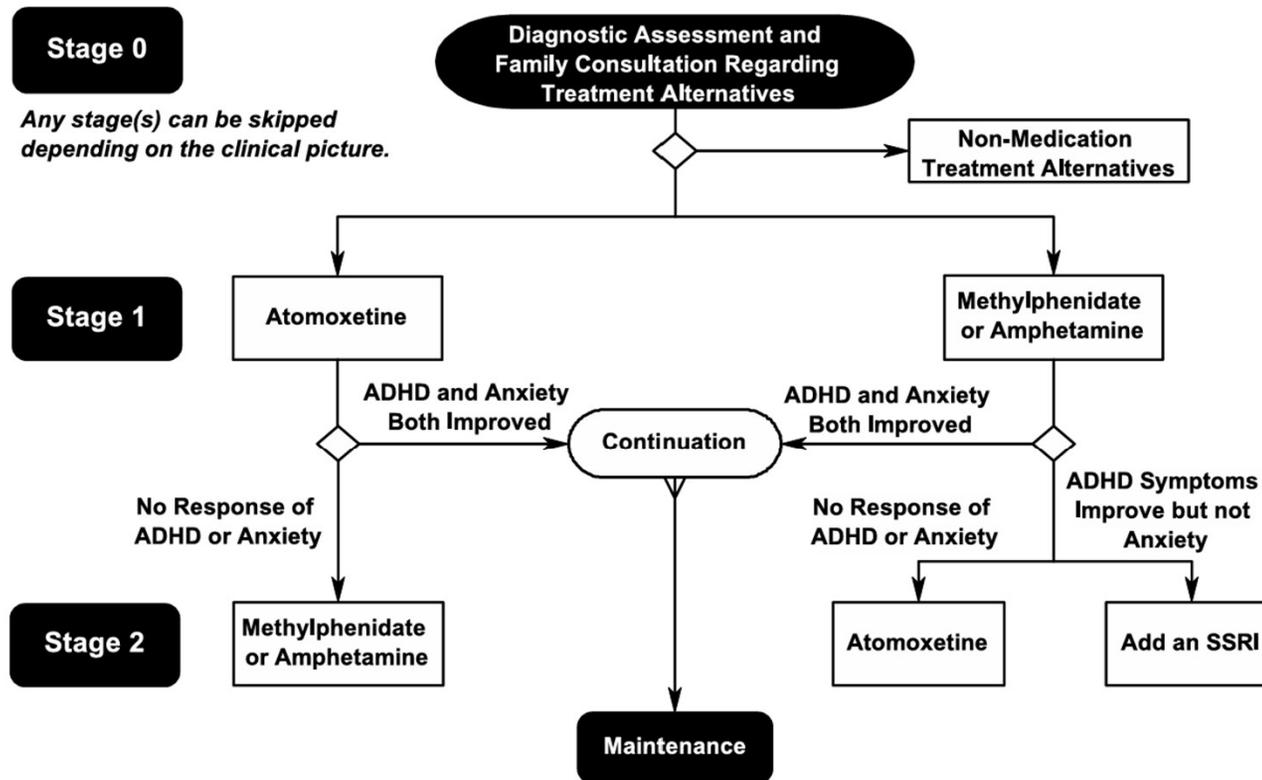
Meta-analysis (Reduced Risk of Anxiety with Psychostimulant Treatment in Children with ADHD)

- Psychostimulants significantly reduced the risk of anxiety when compared with placebo.
- Risks of anxiety from psychostimulants outweighed by the number of children who experience improvement in anxiety symptoms
- Possibly as a secondary effect of improved ADHD symptoms.
- Clinicians should consider rechallenging children with ADHD who report new-onset or worsening anxiety with psychostimulants, as these symptoms are much more likely to be coincidental rather than caused by psychostimulants.

J Child Adolesc Psychopharmacol. 2015 Oct 1;25(8):611–617. Meta-Analysis: Reduced Risk of Anxiety with Psychostimulant Treatment in Children with Attention-Deficit/Hyperactivity Disorder
Catherine G Coughlin 1, Stephanie C Cohen 1, Jilian M Mulqueen 1, Eduardo Ferracioli-Oda 2, Zachary D Stuckelman 1, Michael H Bloch 1,,3

Texas algorithm for ADHD

J. AM. ACAD. CHILD ADOLESC. PSYCHIATRY, 45:6, JUNE 2006



ADHD = Attention Deficit Hyperactivity Disorder
SSRI = Selective serotonin reuptake inhibitor

Fig. 3 Algorithm for the psychopharmacological treatment of ADHD and comorbid anxiety disorder.

POSSIBLE SIGNS OF ANXIETY IN ASD



Crying



Running away



Pacing



Self-injurious behaviour



Inattention



Skin or nail picking



Racing heart



Appetite changes



Meltdowns



Insomnia



Repetitive questioning



Rocking



GI distress

ANXIETY SCALE FOR CHILDREN-ASD

Rodgers J. Autism Res. 2016; 9(11): 1205-1215.

Anxiety Scale for Children – Autism Spectrum Disorder – Child version (ASC-ASD)[©]

Jacqui Rodgers, Sarah Wigham, Helen McConachie, Mark Freeston, Emma Honey, Jeremy Parr
Newcastle University, Newcastle UK

Name: _____ Date: _____ Age: _____

Please put a circle around the word that shows how often each of these things happen to you. There are no right, or wrong answers.

	Never	Sometimes	Often	Always
As of a sudden I feel really scared for no reason at all				
I worry what other people think of me				
My heart suddenly starts to beat too quickly for no reason				
I feel scared when I have to take a test in case I make a mistake				
I worry people will bump into me or touch me in busy or crowded environments				
I am afraid of being in crowded places (like shopping centers, the movies, buses, busy playgrounds) in case I am separated from my family				
I worry that I will do badly at my school work				



8. I suddenly feel as if I can't breathe when there is no reason for this	Never	Sometimes	Often	Always
9. I am afraid of new things, or new people or new places	Never	Sometimes	Often	Always
10. I am afraid of entering a room full of people	Never	Sometimes	Often	Always
11. I worry when I go to bed at night because I don't like to be away from my parents/ family	Never	Sometimes	Often	Always
12. When I have a problem I feel shy	Never	Sometimes	Often	Always
13. I suddenly start to tremble or shake when there is no reason for this	Never	Sometimes	Often	Always
14. When I don't know what will happen, I can't do things	Never	Sometimes	Often	Always
15. I worry when I think I have done poorly at something	Never	Sometimes	Often	Always
16. I always need to be prepared before things happen	Never	Sometimes	Often	Always
17. I feel afraid that I will make a fool of myself in front of people	Never	Sometimes	Often	Always
18. I worry about being away from my parents	Never	Sometimes	Often	Always
19. I worry that something awful will happen to someone in my family	Never	Sometimes	Often	Always
20. I would feel scared if I had to stay away from home overnight because I like to be close to my parents/ family	Never	Sometimes	Often	Always
21. I worry about being in places that are too loud, or too bright or too busy	Never	Sometimes	Often	Always
22. I suddenly become dizzy or faint when there is no reason for this	Never	Sometimes	Often	Always
23. I worry if I don't know what will happen e.g. if plans change	Never	Sometimes	Often	Always
24. I worry that something bad will happen to me	Never	Sometimes	Often	Always

The thinking...



“Long acting
psychostimulant is better”

Long acting better than short acting

Long acting benefit

- not forced to go to a very busy school nurse or school office to receive their medications. Compliance “forgotten”
- less prone to contribute to the development of drug abuse or dependence.
- smoother and more stable level and prevent “roller-coaster”

When should we use short acting ?

When should we use short acting ?

- **Flexibility** : For example, adding a small evening dose for certain task.
- **Titration**: When first starting a medication.
- **As-needed use**: Only need coverage for specific, short tasks rather than the whole day.

Don't forget:

Methylphenidate immediate release Rubifen or Ritalin tablet.

- Can be crushed

Methylphenidate sustained release (SR) as Rubifen SR (tablets) 20mg

- Cannot be crushed or chewed.

Methylphenidate modified release as Ritalin LA (capsules)

- Can be opened and granules sprinkled but not crushed/chewed.

Methylphenidate extended release as Teva/ Concerta (tablet)

- Cannot be crushed or chewed.

Lisdexamfetamine dimesilate

- Can be opened and powder add to water

Dexamphetamine sulfate as 5mg tablet

- Can be crushed

Atomoxetine does not require a special authority.

- Needs to be swallow whole.

Clonidine use for ADHD is off label in New Zealand

- Tablets can be crushed; also can transition to patch.