North of Tyne, Gateshead and North Cumbria Area Prescribing Committee

Shared Care Guidance

Introduction	**Indication** Improved working memory and processing speed following neurocognitive damage secondary to brain injury from; a brain tumour and its associated treatment (e.g. hydrocephalus and radiotherapy) or neurotoxic chemotherapy. **Background** One of the major long-term side-effects of radiotherapy on the developing brain is a slowing of the processing speed. Similar late-effects also occur following; prolonged hydrocephalus secondary to a brain tumour, or the repeated delivery of neurotoxic chemotherapy such as intrathecal methotrexate for the treatment of acute lymphoblastic leukaemia (ALL). At present there are few supported/established options to improve slow processing speed and working memory. Exercise, computer-based activities, and pharmacological approaches have been explored including several promising studies investigating the use of methylphenidate. The Paediatric Oncology Survivorship Team at The Great North Children's Hospital has successfully pioneered the use of methylphenidate for neurocognitive late-effects in the UK, and thus far all patients treated have demonstrated benefit of drug upon formal neurocognitive testing.
Dosing	**Short-acting (SA) and long-acting (LA) methylphenidate** SA tablets 5mg,10mg and 20mg strengths – tablets can be halved. LA tablets Xaggitin XL: 18mg, 27mg, 36mg and 54mg strengths. Equasym XL: 10mg, 20mg and 30mg strengths. Medikinet XL: 5mg, 10mg, 20mg, 30mg and 40mg strengths. **Prescribing regimen, dose and frequency** Twice daily SA methylphenidate: 1. 0.15mg/kg/dose. 2. Escalate to 0.3mg/kg/dose following clinical review for side-effects. 3. Maximum dose 0.6mg/kg/dose. Once daily LA methylphenidate: 4. Convert to LA as per BNF/BNFC or summary of product characteristics via emc once a stable SA dose has been achieved for 2 specialist review appointments (see below). All doses will be appropriately rounded according to tablet strengths and will not exceed the doses recommended in the BNF/BNFC.
Specialist Responsibilities	**Perform eligibility assessment** • Cognitive screening. • Discuss contravening factors. • Provide information leaflet to patient and/or parent/guardian. • General review of mental health. • Make appointment for medical assessment. **Perform medical assessment** • Assess contra-indications (outlined below). • Provide patient/carer with information on use (highlighting the unlicenced use of methylphenidate), side-effects and need for monitoring.

	• Review of physical health and cardiovascular examination. NICE guidelines (www.nice.org.uk/guidance/ng87) will be followed for any additional cardiology investigations/review required. • Review current medication. • Review ability to take tablet medication. • Ensure within appropriate age range (5-15 years and 6 months). • Prescription of medication if appropriate. • Provision of specialist nurse contact details. • Information letter for school. **Perform review appointments** • Review side-effect profile (outlined below). • Monitor height, weight, BP and heart rate (see below). • Dietetic support where appropriate. • Review medication and discuss dose increase if appropriate. • Review satisfaction of patient and/or parent/guardian with mediation. • Neuro-cognitive assessment as determined by clinical psychologist. • Repeat 3 monthly reviews until therapeutic dose reached. **Discontinue treatment under the following circumstances** • Patient/parent choice. • Intolerable side-effects. • No documented benefit. • Worsening of seizure activity. • Patient no longer under specialist care; there will be no transition to adult services for the provision of methylphenidate for neurocognitive deficit in childhood cancer survivors. **Monitor side-effects** Monitoring of side effects will follow the current NICE guidelines (https://www.nice.org.uk/guidance/NG87). These vary according to the age of the child (>/<10 years) but in brief include: • Height every 6 months. • Weight every 3-6 months. Frequency depends on age of child and dose changes. • BP and heart rate every 6 months and after each dose change. • Assess side-effects using the Barkley's Stimulant Side Effect Rating Scale and as outlined in the BNF/BNFC (see below for detail). **Inform the GP** • If commencing, changing dose/preparation or discontinuing methylphenidate. • If there are any changes to the patient's status as a result of the methylphenidate such as; improvement in working memory/processing speed, appetite disturbance or weight loss requiring dietetic input. • If the patient is not being brought to hospital appointments. **Arrange shared care with GP** • When the patient has been on a stable dosing regimen for at least 2 review appointments (see above). • Provide the patient's GP with relevant information including medication to be provided (preparation and dose), and any required monitoring (i.e. height, weight, BP and heart rate). It is anticipated that most patients will have all their monitoring conducted in hospital. Should patients require any monitoring of height, weight, BP and heart rate in the primary care setting, the frequency and communication route for results will be route for results will be made clear in the 'Other Information' section of the shared care request form.
GP Responsibilities	• Prescribe methylphenidate: It is strongly recommended that prescriptions are issued for a maximum treatment duration of one month, in line with good practice guidance for controlled drug

	prescribing. • Report significant deviations from the prescribing pattern to the specialist. • Monitor side-effects in accordance with written directions of specialist. Most patients attend hospital frequently enough to have their height, weight, BP and heart rate assessed. Where this is not possible the GP will be asked by the specialist to facilitate this on an individual patient basis. • Report any adverse events to the specialist and the usual bodies (e.g. MHRA). • Contact the specialist if concerned about any aspects of the patient's treatment e.g. failure to collect prescriptions.
Adverse Effects, Precautions, Contraindications	**Contraindications** Eating disorders, cardiac arrhythmias, cardiomyopathy, cardiovascular and cerebrovascular disorders, vasculitis, heart failure, severe hypertension, structural heart abnormalities, hyperthyroidism, phaeochromocytoma, mental health problems including; psychosis, severe depression, uncontrolled bipolar disorder, and suicidal ideation. Caution is also applied when there is; alcohol or drug dependency including in the family home, agitation, anxiety, tics, epilepsy, and a family history of Tourette syndrome or susceptibility to angle-closure glaucoma. **Adverse effects (see above also)** Potential side-effects include; gastrointestinal disturbances (e.g. abdominal pain, nausea, vomiting) appetite and weight loss, growth retardation, tics, mood and behaviour disturbance, delusions, hallucinations, anxiety, panic attacks, drowsiness, headache, insomnia, irritability, tachycardia, chest pains, hypertension, dizziness, cough, rashes, sexual dysfunction. For full details of less common side-effects please consult the BNF/BNFC. Side-effects are more frequently observed on moderate-dose SA methylphenidate (0.6mg/kg/dose) compared to lower-dose. In our experience the most frequently observed side-effects are; insomnia, appetite and weight loss.
Common Drug Interactions	**Methylphenidate has the following interactions (BNF/BNFC)** • Predicted to decrease the effects of Apraclonidine. • Predicated to increase the risk of a hypertensive crisis when given with Isocarboxazid, Moclobemide, Ozanimod, Phenelzine, Rasagiline, Selegiline or Tranylcypromine. • Predicated to increase the risk of elevated blood pressure when given with Linezolid. • Increases the risk of dyskinesias when given with Paliperidone or Risperidone.
Communication/Contact Details	**Great North Children's Hospital Paediatric Oncology Survivorship Team** Hospital switchboard: 0191 2336161 Dr Rebecca M Hill: Rebecca.hill48@nhs.net Dr Sarah Verity: Sarahjane.verity@nhs.net Prof Simon Bailey: Simon.bailey8@nhs.net Dr Gail Halliday: Gail.halliday5@nhs.net Specialist Nurse Jade Ryles: Jade.ryles@nhs.net

This information is not inclusive of all prescribing information and potential adverse effects. Please refer to full prescribing data in the SPC or the BNF

Private and Confidential

Shared Care Request/Confirmation

- Specialist Prescriber to complete first section of form and send to patient's GP.
- GP to complete second section of form and return to specialist prescriber within 28 days
- A copy of the full shared care guideline can be viewed at www.northoftyneapc.nhs.uk

Specialist Prescriber				
Department				
Hospital				
Telephone				
Patient details (use hospital label if preferred)				
Name				
Address				
Postcode				
NHS or Hosp reg no		**Male / Female**	**DoB**	

Treatment Requested for Prescribing in Accordance with an Approved Shared Care Arrangement					
Drug Information – Amiodarone					
Formulation		**Dose**		**Frequency**	
Indication					
Other information (if appropriate)					
Signed (Specialist Prescriber)		**Name (Print)**		**Date**	

To be completed by GP	**Please tick one box**
I ACCEPT the proposed shared care arrangement for this patient	
I ACCEPT the proposed shared care arrangement with the caveats below	
I DO NOT ACCEPT the proposed shared care arrangement for this patient	
My caveats/reason(s) for not accepting include:	

Signed		**Name (print)**		**Date**	

N.B. Participation in this shared care arrangement implies that prescribing responsibility is shared between the specialist prescriber and the patient's GP