SHARED CARE GUIDELINE for PAEDIATRIC use of recombinant human GROWTH HORMONE (r-hGH, somatropin)

1. Aim/Purpose of this Guideline

1.1. This guideline applies to medical, nursing and pharmacy staff in the safe and appropriate prescription and administration of Somatropin (growth hormone) when used in CHILDREN.

2. The Guidance

2.1. See below for the Shared Care Guideline. The guideline is very strongly based on that suggested by the British Society for Paediatric Endocrinology and Diabetes and its use is acknowledged.

TREATMENT OF PAEDIATRIC GROWTH HORMONE (GH) DEFICIENCY SOMATROPIN

This shared care guideline sets out details for the sharing of care of children with growth hormone deficiency prescribed somatropin. These guidelines provide additional limited information necessary to aid in the treatment of these patients. As with all shared care guidelines they highlight relevant prescribing issues but should be used in conjunction with relevant NICE guidance, the BNF, ABPI summary of product characteristics and *do not* replace them.

INTRODUCTION/BACKGROUND INFORMATION

Growth hormone is produced by the anterior pituitary gland. It has a role in the regulation of protein, lipid and carbohydrate metabolism, as well as in increasing growth in children.

Extensive surveys have not suggested an increased risk of tumours or leukaemia with r-hGH therapy compared with similar patients who have not received therapy when replacement doses are physiological in confirmed growth hormone insufficiency/deficiency (GHD).

INDICATIONS FOR THE PURPOSES OF THIS GUIDELINE

Recombinant human growth hormone (somatropin) treatment is recommended for the treatment of children with GH deficiency in the following circumstances:

1. Growth disturbance in children with GHD causing short stature
2. Growth disturbance in girls with Turner Syndrome confirmed by chromosomal analysis
3. Growth disturbance in children with chronic renal failure
4. Improvement in growth and body composition in children with Prader-Willi Syndrome confirmed by chromosomal analysis
5. Growth disturbance in children born Small for Gestational age
6. Growth disturbance associated with SHOX deficiency confirmed by DNA analysis.

Diagnosis is based on a combination of growth measurement, skeletal examination and imaging and biochemical measurement. Exclusion of other possible causes of growth failure will be appropriate

When an insulin stress test is contraindicated (e.g. epilepsy, ischaemic heart disease) the use of a glucagon (or arginine) test alone will be appropriate.

PREPARATIONS AND DOSAGE

Somatropin is human growth hormone produced by recombinant DNA technology. Its amino acid sequence is identical to that of natural human GH.

The Specialist Team will advise on the preparation to be used. In general, product used is Omnitrope Surepal, a biosimilar growth hormone based on cost-effectiveness as advised by KCCG and following discussion with patient and/or parents, although any of the 6 other preparations may be started and continued.

Treatment is administered by a daily subcutaneous injection with the dose dependent upon the indication. The specialist (Consultant Paediatric Endocrinologist or Consultant Paediatrician with expertise in growth disorders) will suggest the starting dose regime and the way it is to be increased initially. Adjustments will be required intermittently. Prescribing should always be in keeping with guidelines for r-hGH published by NICE.

CONTRAINDICATIONS

- Hypersensitivity to somatropin or any excipient of the formulation chosen.
- Evidence of tumour activity (complete any antitumour therapy and ensure that intracranial lesions are inactive before starting).
- After renal transplantation or for growth promotion in children with closed epiphyses (or near closure in Prader-Willi Syndrome)
- Patients in critical care are not recommended growth hormone.
- Severe obesity or severe respiratory syndrome in Prader-Willi Syndrome

PRECAUTIONS

- Diabetes mellitus (adjustment of antidiabetic therapy may be necessary).
- Papilloedema.
- Deficiencies of other pituitary hormones:
  ACTH deficiency – treatment with steroid replacement should precede other hormone replacement;
  Hypothyrodism – manufacturers recommend periodic <yearly> thyroid function tests but limited evidence of clinical value.
- History of malignant disease.
- Resolved intracranial hypertension (monitor closely).
- Rotate subcutaneous injection sites to prevent lipoatrophy.

MONITORING

SPECIALIST TEAM:

- The consultant is responsible for initial and ongoing assessment of the patient.
- Adrenal deficiency should be assessed in the initial investigation and replacement therapy should be initiated before somatropin is considered.

- Somatropin dose should be adjusted according to clinical response. The lowest effective dose should be used. Patients should initially receive treatment on the basis of a dose titration and stabilisation for 1-2 months followed by a 6 months trial of therapy at a maintenance dose.
- The consultant will carry out regular checks on haemoglobin A1c, blood glucose, insulin-like growth hormone (IGH-1) and annually thyroid function tests.
- Insulin treated diabetic patients may require adjustment of their insulin dose on initiation of therapy. If necessary insulin dosage alteration will be the responsibility of the consultant based on the above monitoring.

GENERAL PRACTICE:

- There are no specific biochemical monitoring requirements for the GP to undertake.
- A non-urgent communication should be made to the consultant if hypothyroidism is suspected or identified.

SIDE EFECTS

Side effects include:

- Skin reactions at the injection site and loss or increase of adipose tissue at injection site
- Idiopathic intracranial hypertension associated with severe headache and papilloedema
- Hypothyroidism
- Hypertension
- Insulin insensitivity
- Insomnia
- Myalgia
- Paraesthesia
- Antibody formation but rarely of physiological relevance
- Fluid retention and peripheral oedema but not commonly in children

COMMON/SIGNIFICANT DRUG INTERACTIONS

Corticosteroids – Growth promoting effect may be inhibited. Interactions do not generally apply to corticosteroids used for topical action (including inhalers).

Oestrogens – Higher doses of somatropin may be needed with oral oestrogen replacement therapy. Interaction with combined oral contraceptives may also apply to combined contraceptive patches. In the case of HRT, low doses are unlikely to induce interactions.

Anticonvulsants and ciclosporin – clearance of these compounds may be increased by somatropin resulting in lower plasma levels of these compounds.

REFERENCES:

Resource for Doctors and Patients:
http://www.pituitary.org.uk
www.bsped.org.uk
www.childgrowthfoundation.org
Summary of Product Characteristics.
NICE Technology Appraisal 188: Human growth hormone (somatropin) for the treatment of growth failure in children (published May 2010)
BSPED Shared Care Guideline (endorsed July 2015)

Request for other formats

Please ask if you would like to receive this leaflet in large print, braille, on CD or in any other languages. If you would like the leaflet in an alternative format please contact the NHS Kernow Communications Team at communications@kernowccg.nhs.uk or call 01726 627800

AREAS OF RESPONSIBILITY FOR THE SHARING OF CARE

These are suggested ways in which the responsibilities for the management of paediatric patients with growth hormone deficiency who are prescribed somatropin can be shared between the specialist and the general practitioners. The expectation is that these guidelines should provide sufficient information to enable GPs to be confident to take clinical and legal responsibility for prescribing this drug. If a specialist asks the GP to prescribe this drug the GP should reply to this request as soon as practical.
Sharing of care assumes communication between the specialist, GP and patient. The intention to share care should be explained to the patient and be accepted by them.

In its guidelines on responsibility for prescribing (circular EL(91)127) between hospitals and GPs, the DH has advised that legal responsibility for prescribing lies with the doctor who signs the prescription.

Specialist:

- Confirmation that GH treatment is appropriate
- Selection of appropriate preparation
- Initiation of drug treatment and stabilisation of patient's condition over 1-2 months for dose stabilisation
- After the stabilisation period ask the GP whether they are willing to participate in shared care
- A decision on continuing therapy will be taken by the consultant after a further 6 months of prescribing in primary care
- Provide the patient or patient's carer with suitable written and verbal information about the drug prior to starting medication and discuss the benefits and side effects of treatment
- Ensure that training on reconstitution, administration and storage of GH is provided for the patient or carer
- Prescribing the drug until the patient's condition/dose is stabilised and the GP agrees to take over responsibility for prescribing (usually 1-2 months)
- Specify review dates at clinically relevant time intervals. The first review should be at 6 months after dose stabilisation and thereafter at 12 monthly intervals for continued therapy
- Undertake monitoring as described in the shared care guideline including annual thyroid function test
- Prompt communication with GP of any changes in treatment, results of monitoring undertaken and assessment of adverse events
- Advice to GP on when to stop treatment
- Provide the GP with relevant contact information with clear arrangements for back-up advice and support should further assistance be required relating to this drug
- Reporting adverse events to the MHRA

General Practitioner:

- If the GP agrees to shared care he/she will notify the consultant in writing without undue delay.
- Prescribing somatropin BY BRAND (specifying the cartridge strength as per the consultant letter) after communication with specialists regarding the need for treatment (this will usually take place after the first 1-2 months of dose stabilisation).
- GP prescribing of somatropin for a further 6 months after dose stabilisation. At this point the consultant will review the patient to assess whether there is any benefit from continued treatment
- Prompt communication to a specialist if there is symptomatic change in the patient's expected response to treatment
- Reporting to, and seeking advice from, a specialist on any aspect of patient care which is of concern to the GP and may affect treatment
- Reporting adverse events to the specialist and MHRA
- Stopping treatment in the case of severe adverse event or as per shared care guideline

Patient: and parent / carer responsibilities

- Report any adverse effects to their GP and/or specialist regarding their treatment
- Ensure that they have a clear understanding of their treatment
- Ensure they attend for monitoring requirements as per shared care guideline
- Aware that treatment will be stopped if patient does not attend for monitoring

BACK-UP ADVICE AND SUPPORT IS AVAILABLE FROM THE RELEVANT CLINICAL TEAM

3. Monitoring compliance and effectiveness

Element to be monitored	Compliance with prescribing and administration in accordance with this guideline (or other safe practice)
Lead	Head of Prescribing Support Unit
Tool	No specific tool
Frequency	As required according to clinical incident reports
Reporting arrangements	Via Medicines Practice Committee
Acting on recommendations and Lead(s)	Relevant Clinical Staff
Change in practice and lessons to be shared	Relevant Clinical Staff

4. Equality and Diversity

4.1. This document complies with the Royal Cornwall Hospitals NHS Trust service Equality and Diversity statement which can be found in the 'Equality, Diversity & Human Rights Policy' or the Equality and Diversity website.

4.2. Equality Impact Assessment

The Initial Equality Impact Assessment Screening Form is at Appendix 2.

Appendix 1. Governance Information

Document Title	Shared Care Guideline for Somatropin (Growth Hormone) for Children					
Date Issued/Approved:	May 2017					
Date Valid From:	May 2017					
Date Valid To:	April 2020					
Directorate / Department responsible (author/owner):	Paediatric Team, RCH M Wilcock, Head of Prescribing Support Unit, Pharmacy Department, RCHT					
Contact details:	01872 253548					
Brief summary of contents	Some clinical issues and details of prescribing responsibilities for GP and specialists					
Suggested Keywords:	Shared care					
	RCHT	✓	CFT		KCCG	✓
Executive Director responsible for Policy:	Medical Director					
Date revised:	May 2017					
This document replaces (exact title of previous version):	Shared Care Guideline for Somatropin (Growth Hormone) for Children					
Approval route (names of committees)/consultation:	Cornwall Area Prescribing Committee					
Divisional Manager confirming approval processes	Not required					
Name and Post Title of additional signatories	, Governance Lead CSSC					
Signature of Executive Director giving approval	{Original Copy Signed}					
Publication Location (refer to Policy on Policies – Approvals and Ratification):	Internet & Intranet	✓	Intranet Only			
Document Library Folder/Sub Folder	Clinical / Pharmacy					
Links to key external standards	None					
Related Documents:	None					
Training Need Identified?	No					

Version Control Table

Date	Version No	Summary of Changes	Changes Made by *(Name and Job Title)*
Jun '14	V1.0	Original document	M Wilcock, Head of Prescribing Support Unit
May'17	V1.1	Minor amendments	M Wilcock, Head of Prescribing Support Unit

All or part of this document can be released under the Freedom of Information Act 2000

This document is to be retained for 10 years from the date of expiry.

This document is only valid on the day of printing

Controlled Document

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Appendix 2.Initial Equality Impact Assessment Screening Form

Name of service, strategy, policy or project (hereafter referred to as *policy)* to be assessed: Shared care guideline for melatonin	
Directorate and service area: Pharmacy	Is this a new or existing Procedure? Existing
Name of individual completing assessment: Dan Thomas, Pharmaceutical Services Contracting Team, NHS Kernow	Telephone:01726 627953
1. Policy Aim*	To provide information on prescribing of somatropin in children to enable General Practitioners to take over prescribing responsibility from secondary care.
2. Policy Objectives*	To promote a consistent level of shared care between primary and secondary care (in relation to RCHT catchment area)
3. Policy – intended Outcomes*	Confident and competent prescribers, enabling medicines to be access in a primary care setting.
5. How will you measure the outcome?	If the guideline is not well received, publicised and adopted, then some GPs may not enter into shared care arrangements.
5. Who is intended to benefit from the Policy?	General practitioners, hospital specialists and community pharmacists – from understanding local guidance around use of these medicines. Patients/carers, from being able to access medicines from their GP.
6a. Is consultation required with the workforce, equality groups, local interest groups etc. around this policy? b. If yes, have these groups been consulted? c. Please list any groups who have been consulted about this procedure.	No Cornwall & IoS Area Prescribing Committee

7. The Impact Please complete the following table.			
Are there concerns that the policy **could** have differential impact on:			
Equality Strands:	Yes	No	Rationale for Assessment / Existing Evidence
Age		✓	
Sex (male, female, trans-gender / gender reassignment)		✓	
Race / Ethnic communities /groups		✓	

Disability - learning disability, physical disability, sensory impairment and mental health problems		✓	
Religion / other beliefs		✓	
Marriage and civil partnership		✓	
Pregnancy and maternity		✓	
Sexual Orientation, Bisexual, Gay, heterosexual, Lesbian		✓	

You will need to continue to a full Equality Impact Assessment if the following have been highlighted:

- You have ticked "Yes" in any column above and
- No consultation or evidence of there being consultation- this excludes any *policies* which have been identified as not requiring consultation**. or**
- Major service redesign or development

8. Please indicate if a full equality analysis is recommended.	**Yes**	**No** ✓

9. If you are not recommending a Full Impact assessment please explain why.

Signature of policy developer / lead manager / director	Date of completion and submission

Names and signatures of members carrying out the Screening Assessment	1. Dan Thomas 2. Mike Wilcock	

Keep one copy and send a copy to the Human Rights, Equality and Inclusion Lead, c/o Royal Cornwall Hospitals NHS Trust, Human Resources Department, Knowledge Spa, Truro, Cornwall, TR1 3HD

A summary of the results will be published on the Trust's web site.

Signed _____ Dan Thomas and Mike Wilcock _____

Date _____ Jun 2014 _____