NHS Lothian

University Hospitals Division

# Growth Hormone

For Adult Hypopituitarism

## Shared Care Protocol and Information for GPs

**April 2004**

### Introduction

Recombinant human growth hormone has been available for 10 years and is now used safely in children with growth hormone deficiency, renal failure, and Turner's syndrome.

Recombinant growth hormone has also been licensed for use in adults since 1995:

- Patients with hypopituitarism (most commonly due to pituitary tumours) receive replacement with hydrocortisone, thyroxine, sex steroids and sometimes DDAVP. However, despite careful titration of these therapies, hypopituitary patients have residual problems, including lethargy, reduced muscle mass, central obesity, and an increased risk of cardiovascular mortality.
- There is evidence that growth hormone replacement produces beneficial effects on muscle mass and strength, body fat distribution, blood lipid levels, insulin sensitivity, bone mineral density, and cardiac output. Most importantly, some patients experience a dramatic improvement in well-being and quality of life. This response is hard to predict and varies markedly between patients. No data are available to establish whether growth hormone prolongs life, but in this rare group of patients (fewer than 0.01% prevalence) a randomised controlled outcome trial is unlikely ever to be performed. The view of Lothian Endocrinologists is that it should be offered to patients who derive symptomatic benefit, but not to all hypopituitary adults.
- Treatment of adult hypopituitary patients with growth hormone has been approved by NICE in 2003 (http://www.nice.org.uk/pdf/TA64_HGHadults_fullguidance.pdf). NICE issued specific instructions on the strategy which should be used to identify patients who respond symptomatically, which we are following in Lothian. The NICE recommendations have been approved by the NHS Quality Improvement Scotland organisation (http://www.htbs.co.uk/docs/pdf/NICE%20Guidance%20process%20.pdf). The additional costs of growth hormone therapy in adults have been approved by the Lothian Formulary Committee as an Additional List Drug. This shared care protocol has been reviewed by the General Practice Prescribing Committee.

### Shared Care

As outlined in the NHS circular 1992 (Gen 11) a consultant may seek the GPs involvement in prescribing for a patient where there is a shared care agreement. This protocol provides information on growth hormone replacement therapy for Adult Hypopituitarism for the shared commitment between the consultant and GP concerned.

It is anticipated that the GP will be responsible for prescribing after the patient has been established on a stable dose, usually within 3 months of initiating therapy.

### Indication for Therapy

Patients with documented hypopituitarism (the licenced indication) are eligible for consideration of Growth Hormone replacement therapy if they are:

- aged >18 years
- are symptomatic despite adequate replacement of all other hormonal deficiencies, eg with lethargy, reduced muscle power, associated with central obesity.
- would consider daily self-injection.
- have no contra-indications, including diabetes mellitus, concurrent malignant disease, cardiac failure, are risk of pregnancy.
- have a score of >11 on a disease-specific Adult Growth Hormone Deficiency Assessment scale.
- have confirmed growth hormone deficiency on dynamic testing.

### Preparations Available

Genotropin (Pharmacia); Humatrope (Lilly); Norditropin (Novo Nordisk); Saizen (Serono)

### Recommended Dosage and Administration

Growth hormone replacement is administered as a daily subcutaneous injection at bed-time. Usually, the drug is supplied in disposable pens containing two cartridges (of powder and diluent) which are mixed inside the pen pre-injection. Alternative injections are available as single dose premixed injection packs.

Our nurses will supervise a graded incremental increase in dose during the first 2 months. Doses required to normalise IGF1 vary between 0.2 mg and 0.6 mg per day. These doses are substantially lower than the licensed dose regime of between 0.04 and 0.08 mg/kg body weight/ week.

**Cost**
The average annual cost is between £3,000 and £4,000 per annum per patient.

**Shared Care Responsibilities**

**Aspects of Care for which the Consultant is responsible**

1. Consultants will establish the diagnosis of growth hormone deficiency in patients with hypopituitarism who remain symptomatic despite conventional replacement therapy and who would consider self-administration of growth hormone.
2. Consultants will administer the Assessment of Growth Hormone Deficiency in Adults (AGHDA) disease-specific Quality of Life questionnaire.
3. If growth hormone deficiency is confirmed and the AGHDA score is >10, Consultants will write to the GP to ask for his/her agreement to undertake long-term prescription of growth hormone in the event that this is indicated.
4. Thereafter, Consultants will be responsible for establishing the patient on a stable regime. This includes:
   - hospital nurses will teach self-injection techniques;
   - titrate the dose of growth hormone during the first 3 months to achieve normal IGF1 levels in plasma;
   - remeasure IGF1 at 6 and 9 months after initiation of treatment to ensure continued adequate replacement doses;
   - assess the patient's response to this therapeutic trial using the AGHDA Quality of Life questionnaire 9 months after commencing treatment and decide with the patient whether long-term therapy is appropriate.
5. If long-term therapy is appropriate, Consultants will ask the GP to continue prescriptions.
6. Consultants will undertake follow-up in the Endocrine clinic, initially at 6 months and annually thereafter. If requested by the GP, we will respond to any concerns raised by the patient between visits.

**Aspects of Care for which the General Practitioner is responsible (*at 3 months*)**

- prescriptions of growth hormone and administration devices, as advised from the hospital
- reporting concerns to the hospital

**Adverse Effects and Drug Interactions**

- Sodium retention (oedema, carpal tunnel syndrome) is only common with higher doses and can usually be relieved by a reduction in dose.
- Arthralgia and myalgia can occur but are also dose-dependent and usually transient.
- Intra-cranial hypertension is rare, but **any severe persistent headache should be reported to us** and the patient will be reviewed early.
- Hypothyroidism is a complication which is not relevant in most patients, who are already receiving thyroxine.
- There has been concern that growth hormone would accelerate growth of neoplasms. There is no evidence that it does so for pituitary tumours.

**Contact Points**

**Elective problems**
In the first instance, please contact the secretary to the relevant Endocrinologist:

| | |
|---|---|
| Dr Paul L Padfield, WGH | 0131 537 1753 |
| Prof Jonathan R Seckl, WGH | 0131 537 1753 |
| Prof Brian R Walker, WGH | 0131 537 3076 |
| Dr Roger W Brown, WGH | 0131 537 1753 |
| Dr Mark WJ Strachan, WGH | 0131 537 1000 |
| Dr Anthony Toft, RIE | 0131 242 1000 |
| Dr Alan Patrick, RIE | 0131 242 1000 |

or write to them at the Metabolic Unit, Western General Hospital or at the Royal Infirmary of Edinburgh.
For Pharmacy problems you may contact, Medicines Information Service, Royal Infirmary of Edinburgh, 0131 242 2120

**Urgent problems**
Please contact the on-call Metabolic Registrar (0830 am - 1900 pm) or the on-call Metabolic Consultant (other times), via the Western General Switchboard : 0131 537 1000

**Version 1.0 Date April 2004 Revision Date: April 2006**

This information was prepared by the Metabolic Unit (Western General Hospital) in liaison with the Endocrine Unit (Royal Infirmary of Edinburgh) through liaison with the General Practice Prescribing Committee and the Drug and Therapeutics Committee, Lothian University Hospitals Division