NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE

Health Technology Evaluation

Somatrogon for treating growth disturbance in children and young people aged 3 and over

Draft scope

Draft remit/evaluation objective

To appraise the clinical and cost effectiveness of somatrogon within its marketing authorisation for treating children and adolescents from 3 years of age with growth disturbance due to insufficient secretion of growth hormone.

Background

Human growth hormone is produced by the anterior pituitary gland. The synthetic form is called somatropin (recombinant human growth hormone). Human growth hormone is essential for normal growth in children. It increases growth by a direct action on the growth plates (the area between the epiphysis and the diaphysis within which bone growth occurs) and by production of insulin-like growth factors (mainly in the liver. Growth hormone also has important effects on the metabolism of proteins, lipids and carbohydrates, not only during childhood, but also throughout adult life.

Growth hormone deficiency occurs when the pituitary gland does not produce enough human growth hormone and is the most common endocrine cause of short stature. Growth failure in children can also be a result of growth hormone deficiency, but also occurs in children with Turner syndrome, chronic renal insufficiency (CRI), short stature homeobox-containing gene (SHOX) deficiency, and in children born small for gestational age.Growth hormone deficiency may also be associate with deficiencies in several pituitary hormones arising from hypopituitarism, tumours in the central nervous system, cranial irradiation or other physiological causes.

The prevalence of growth hormone deficiency is estimated to be between 1 in 3500 and 1 in 4000 children.[1] In about half of the children with growth hormone deficiency (50%), the cause is unknown (idiopathic growth hormone deficiency).[1]

Somatropin (recombinant human growth hormone) is currently the only active treatment option for growth failure in children with growth hormone deficiency. It is administered as a daily subcutaneous injection. The place of somatropin in the treatment pathway depends on the child's particular condition, age at diagnosis and the licensed indications of each of the seven somatropin preparations used in UK practice.

The technology

Somatrogon (Ngenla, Pfizer) is a recombinant modified human growth hormone. The glycosylation and C-terminal peptide domains of somatrogon account for the half-life of somatrogon. It is administered as a weekly subcutaneous injection.

Somatrogon currently has a market authorisation in the UK for the treatment of children and adolescents from 3 years of age with growth disturbance due to insufficient secretion of growth hormone.

Intervention(s)	Somatrogon
Population(s)	Children and adolescents from 3 years of age with growth disturbance due to insufficient secretion of growth hormone
Comparators	• Recombinant human growth hormone (somatropin) • Management strategies without human growth hormone
Outcomes	The outcome measures to be considered include: • annual height velocity • final height gained • height standard deviation score-height relative to the distribution of height in children of the same chronological age • growth velocity • growth velocity standard deviation score-growth velocity relative to the distribution of growth in children of the same chronological age (or bone age) • body composition, and biochemical and metabolic markers. • change in bone maturation • adverse effects of treatment • health-related quality of life.
Economic analysis	The reference case stipulates that the cost effectiveness of treatments should be expressed in terms of incremental cost per quality-adjusted life year. If the technology is likely to provide similar or greater health benefits at similar or lower cost than technologies recommended in published NICE technology appraisal guidance for the same indication, a cost comparison may be carried out. The reference case stipulates that the time horizon for estimating clinical and cost effectiveness should be sufficiently long to reflect any differences in costs or outcomes between the technologies being compared. Costs will be considered from an NHS and Personal Social Services perspective. The availability of any commercial arrangements for the intervention, comparator and subsequent treatment technologies will be taken into account. The availability and cost of biosimilar and generic products should be taken into account.

Other considerations	If the evidence allows, the appraisal should consider the transition of care from paediatric to adult endocrine services of young people whose linear growth is not complete. Guidance will only be issued in accordance with the marketing authorisation. Where the wording of the therapeutic indication does not include specific treatment combinations, guidance will be issued only in the context of the evidence that has underpinned the marketing authorisation granted by the regulator.
Related NICE recommendations	**Related Technology Appraisals:** Human growth hormone (somatropin) for the treatment of growth failure in children (2010). NICE Technology appraisal guidance 188. This guidance will be reviewed if there is new evidence. Human growth hormone (somatropin) in adults with growth hormone deficiency (2003). NICE technology appraisal guidance 64. This guidance will be reviewed if there is new evidence. **Related Guidelines:** Faltering growth: recognition and management of faltering growth in children (2017). NICE guideline 75. Updated 2021. Review date TBC. **Related Quality Standards:** Faltering growth (2020). NICE quality standard 197.
Related National Policy	The NHS Long Term Plan, 2019. NHS Long Term Plan NHS England (2017). NHS Medicines for Children's Policy NHS England (2018/2019). NHS manual for prescribed specialist services (2018/2019). Chapter 109. Specialist endocrinology and diabetes services for children (Endocrinology: complex growth problems including Turner syndrome and growth hormone deficiency; puberty disorders including precocious, delayed or absent puberty). NHS England (2013). E03/S/e 2013/14 NHS standard contract paediatric medicine: endocrinology & diabetes (paediatric endocrinology is concerned with the diagnosis and management of children and young people with hormonal disorders (including growth and bone problems). Department of Health and Social Care (2016) NHS outcomes framework 2016 to 2017

Questions for consultation

Have all relevant comparators for somatrogon been included in the scope?

Which treatments are considered to be established clinical practice in the NHS for growth disturbance in children and young people aged 3 and over?

Where do you consider somatrogon will fit into the existing care pathway for growth disturbance in children and young people aged 3 and over?

Are there any subgroups of people in whom the technology is expected to provide greater clinical benefits or more value for money, or other groups that should be examined separately?

NICE is committed to promoting equality of opportunity, eliminating unlawful discrimination and fostering good relations between people with particular protected characteristics and others. Please let us know if you think that the proposed remit and scope may need changing in order to meet these aims. In particular, please tell us if the proposed remit and scope:

- could exclude from full consideration any people protected by the equality legislation who fall within the patient population for which somatrogon is licensed;
- could lead to recommendations that have a different impact on people protected by the equality legislation than on the wider population, e.g. by making it more difficult in practice for a specific group to access the technology;
- could have any adverse impact on people with a particular disability or disabilities.

Are the outcomes listed appropriate?

Do you consider somatrogon to be innovative in its potential to make a significant and substantial impact on health-related benefits and how it might improve the way that current need is met (is this a 'step-change' in the management of the condition)?

Do you consider that the use of somatrogon can result in any potential substantial health-related benefits that are unlikely to be included in the QALY calculation?

Please identify the nature of the data which you understand to be available to enable the committee to take account of these benefits.

Please tell us what evidence should be obtained to enable the committee to identify and consider such impacts.

To help NICE prioritise topics for additional adoption support, do you consider that there will be any barriers to adoption of this technology into practice? If yes, please describe briefly.

NICE intends to evaluate this technology through its Single Technology Appraisal process. We welcome comments on the appropriateness of appraising this topic through this process. (Information on NICE's health technology evaluation processes is available at https://www.nice.org.uk/about/what-we-do/our-programmes/nice-guidance/nice-technology-appraisal-guidance/changes-to-health-technology-evaluation).

NICE's health technology evaluations: the manual states the methods to be used where a cost comparison case is made.

- Would it be appropriate to use the cost-comparison methodology for this topic?

- Is the new technology likely to be similar in its clinical efficacy and resource use to any of the comparators?

- Is the primary outcome that was measured in the trial or used to drive the model for the comparator(s) still clinically relevant?

- Is there any substantial new evidence for the comparator technology/ies that has not been considered? Are there any important ongoing trials reporting in the next year?

References

1. National Institute for Health and Care Excellence. Human growth hormone (somatropin) for the treatment of growth failure in children (2010). Accessed May 2022.