Scottish Paediatric Endocrine Network (SPEG)

Short Stature Guideline

NOTE

This guideline is not intended to be construed or to serve as a standard of care. Standards of care are determined based on all clinical data available for an individual case and are subject to change as scientific knowledge and technology advance and patterns of care evolve. Adherence to guideline recommendations will not ensure a successful outcome in every case, nor should they be construed as including all proper methods of care or excluding other acceptable methods of care aimed at the same results. The ultimate judgement must be made by the appropriate healthcare professional(s) responsible for clinical decisions regarding a particular clinical procedure or treatment plan. This judgement should only be arrived at following discussion of the options with the patient, covering the diagnostic and treatment choices available. It is advised, however, that significant departures from the national guideline or any local guidelines derived from it should be fully documented in the patient's case notes at the time the relevant decision is taken.

Purpose of this document

- To help define which children have short stature and therefore may warrant further investigation.
- To give a framework for evaluation and preliminary investigations for short stature, prior to considering referral to paediatric endocrinology.

Who should use this document?

- This guideline is primarily intended for use in primary care and general paediatrics.

Patients to whom this document applies

- Children aged 16 or under whose family or professionals are concerned about short stature.
- Occasionally this guideline may also apply to those aged over 16 years but who have not completed puberty.

Initial evaluation

All children with possible growth concerns should undergo:

- Thorough general paediatric history and examination
- Accurate measurement of child and ideally both biological parents (parental reporting of height may be necessary in practice)

When to consider further evaluation/referral?

- Severe short stature = height below the 0.4th centile
- Height more than 2 centile spaces* below the mid-parental height**
- Downwards crossing of more than 1 height centile in 1 year, in a child aged 2 years or over

If a child does not fit these criteria, then they family can likely be reassured that their child is growing normally. This may require a follow-up appointment to re-measure in 6-12 months.

*a centile space is the distance between 2 lines on a standard growth chart.

**the standard WHO growth chart contains guidance on how to plot the mid-parental height. Use the parental height comparator on the far right hand side, or alternatively use whichever electronic growth charts are available in your clinical environment. See Appendix 1.

Possible causes of short stature

The causes of short stature can be classified as being either:

- Genetic short stature
- Constitutional delay in growth and puberty
- Dysmorphic syndromes
- Endocrine disorders
- Chronic diseases
- Psychosocial deprivation

Usually there are clues in the history or examination to help narrow down the potential differentials. For example, in genetic short stature, one or both parents will be short (note that one parent may have a medical cause for this, such as growth hormone deficiency of a skeletal dysplasia).

An endocrinopathy is more likely if there is a history of, or signs of, other pituitary hormone dysfunction. A neonatal history to suggest growth hormone deficiency, such as hypoglycaemia or microphallus, or a suspicion of an intracranial lesion also makes endocrinopathy more likely.

Suggested preliminary investigations, for consideration prior to referral if appropriate:

- FBC, UEs, LFTs, TFTs, iron studies, vitamin D, coeliac screen.
- If the child has signs of puberty or is the age which this might be getting started (> 8 years for girls and > 9 years for boys) then consider also checking LH, FSH, oestradiol (girls) and testosterone (boys).
- If the child appears disproportionate, then consider checking both sitting and standing height.
- If constitutional delay in growth and puberty is deemed likely then a bone age x-ray can be considered.
- If an endocrinopathy is deemed likely (see above) then it may also be reasonable to check an IGF1 level and karyotype at the time of blood sampling, to prevent repeated venepuncture.

Who to refer to paediatric endocrinology

- Children who fit the criteria for evaluation as stated above, without identified cause
- Children who are felt likely to have an underlying endocrinopathy

Who not to refer to paediatric endocrinology

- Children who do not fit the criteria for short stature
- Children who have a non-endocrine cause identified for short stature ***

***these children may still warrant further discussion with paediatric endocrinology as they may be candidates for growth hormone therapy. For example, children born small for gestational age who remain short, children with chronic kidney disease who are short, or those with syndromic causes of short stature which are licensed indications for growth hormone treatment.

Appendix 1

Mid parental centile estimation