Managing Growth Hormone Treatment in Pediatric-Adult Transition

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Disclosures

- None
- May discuss off label usage of GH
Objectives

• Review who is receiving GH in pediatrics
• Issues in deciding on GH therapy in adults
• Transition tips
FDA Indications for GH (Pediatrics)

- GH deficiency
- Idiopathic short stature
- Turner Syndrome (& Noonan's)
- SGA (Small for Gestational Age)
- Chronic Renal Failure
- SHOX gene
Diagnosing GH deficiency

- Overt pituitary risk factors?
- Growth Chart
- Bone age
- Rule out other causes
- IGF-1, IGFBP3
- GH stimulation studies
- MRI pituitary
Organic Causes of GHD

- Ectopic Posterior Pituitary
- Septo-optic dysplasia
- Craniopharyngioma
- Rathkes Cleft Cyst
- Genetic defects
- Small pituitary, Empty Sella?
- Pituitary tumors or CNS radiation
- Hypophysitis, Histiocytosis X
Really GH Deficient?

- GH stim low, but growth rate normal
- GH stim low, IGF-1 normal?
- Poor growth, short, normal GH stim
- Short, life stinks without GH
- IGF-1 very low, low BMI
- GH deficient, Insurance denies
GH Adverse Events

- Minor: stinging, dose issues
- Carpal tunnel – uncommon in peds
- Slipped capital femoral epiphyses
- Pseudo-tumor cerebri
- Hyperglycemia
- Scoliosis – not causative
- Is there a risk of neoplasia?
GH and Neoplasia

- No increased risk of tumor recurrence
- Secondary CNS benign tumors
- XRT
Adult GH Deficiency

- Rarely Idiopathic GH Deficiency
- Organic GH deficiency
  - s/p Neurosurgery
  - CNS radiation
  - Hypophysitis
  - Genetic
  - Pituitary Anomaly (ectopic posterior pit)
Ectopic Posterior Pituitary
To Treat, or Not to Treat with GH

1) Are they really deficient?
2) Will treatment with GH benefit them?
3) Other variables:
   a) Will they take the therapy?
   b) What are their views on the pros/cons?
   c) Insurance
   d) Adverse events
Are they really GH deficient?

Table 2  Cut points for diagnosis of adult GHD

<table>
<thead>
<tr>
<th>Society</th>
<th>Year</th>
<th>ITT (ng/mL)</th>
<th>GHRH/Arginine (ng/mL)</th>
<th>Arginine (ng/mL)</th>
<th>Glucagon (ng/mL)</th>
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<td>GRS [59]</td>
<td>1998</td>
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<td>GRS [61]</td>
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<td>Endocrine Society [13]</td>
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<td>&lt;4.1</td>
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</tr>
</tbody>
</table>

*ITT indicates the dosage of GHRH and Glucagon. BMI dependent: GHRH < 4, 8, 11 (dependent on BMI).
GH and Adults

• Bone
• Cardiovascular risk
• Body composition
• Well being
Two years of GH replacement therapy increases BMD in the femoral neck

Transition Considerations
Transition is not just about medical care

- Medical Care
- School/Work
- Independent Living
- Family and peer relationships
- Identity Formation
- Insurance
Goals for the First Visit

• Recognize autonomy
• Build rapport
  - learn about and acknowledge their journey
  - validate the concern of having to deal with a new provider
• Understand barriers for compliance
• Identify those at high risk of AI crises
• Set up expectations of continued care

Godbout A et al Horm Res Paediatr 2012
References


* Burman P. Deaths among adult patients with Hypopituitarism… Endocrinol Metab 2013.