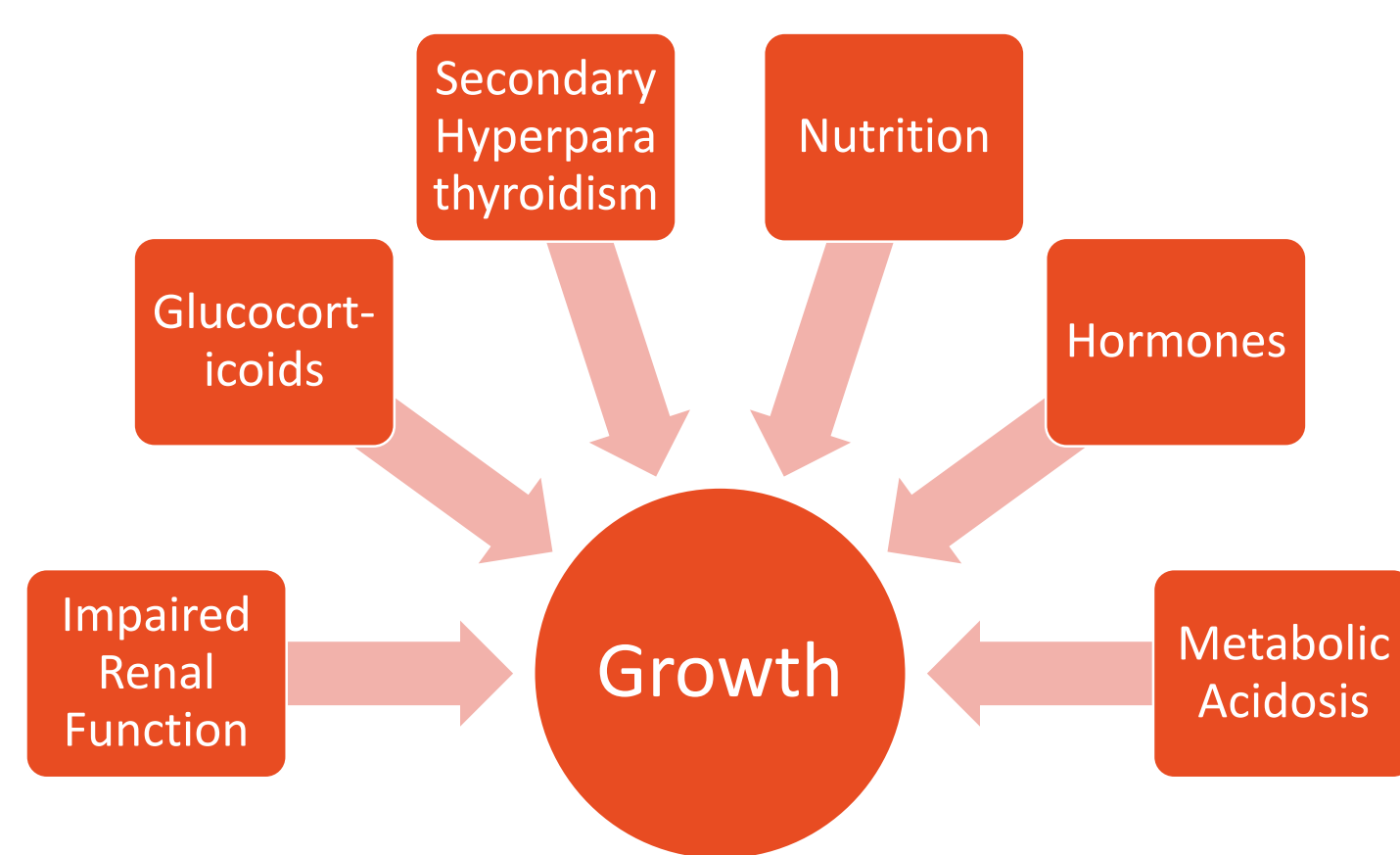


# Growth Monitoring and Use of Growth Hormone in Children with Renal Failure

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## Background

- Chronic renal failure can cause significant growth impairment.
- Many factors contribute towards growth failure and it has a significant impact on morbidity, mortality and quality of life.
- Growth failure defined as <2<sup>nd</sup> centile for height
  - 29% of children who undergo renal transplantation are <2<sup>nd</sup> centile for height
  - 41% of children on dialysis are <2<sup>nd</sup> centile for height
- Patients who undergo renal transplantation experience some 'catch-up' growth but most patients do not reach their target height.
- It is important that growth is monitored regularly and growth failure addressed, including offering patients growth hormone (GH) where appropriate.



## Growth Hormone

- Effects on short-term growth velocity (1 year) range from no improvement to approximately 1 standard deviation above the normal growth velocity
- Gains in final height range between 3–9 cm
- Side effects include headache, paraesthesia, blurred vision, nausea and vomiting and injection site reactions
- Patients with chronic renal insufficiency or post transplantation are eligible if: height <2<sup>nd</sup> centile; no syndrome meaning GH deemed inappropriate; and parents and patient willing

## Aim

We appraised our current practice to see how well we are monitoring growth in renal failure patients and if we are offering GH to eligible patients.

## Method

We defined standards from NICE guidelines and Bristol guidelines endorsed by BSPED. We collected data from 76 patients on haemodialysis, peritoneal dialysis or post-renal transplant.

## Standards

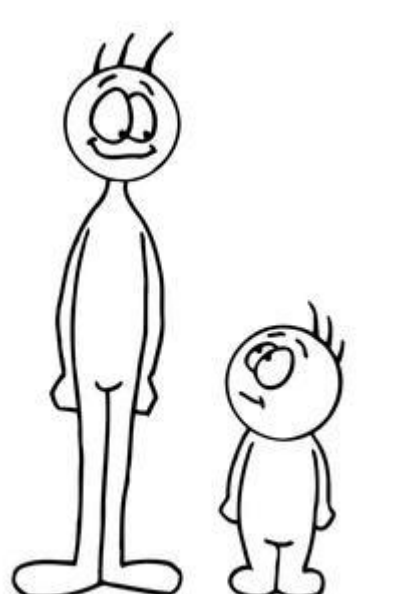
- Every child should have a growth chart in their current notes
- Every child should have growth measured and plotted at least twice a year
- All children with growth failure who are suitable should be offered growth hormone
- Growth hormone should be stopped if:
  - growth velocity increases less than 50% from baseline in the first year of treatment
  - final height is approached and growth velocity is less than 2cm total growth in 1 year
  - there are insurmountable problems with adherence
  - final height is attained

## Results

- 16/44 (36%) post-transplantation and 20/32 (62%) dialysis patients had growth failure as defined by height <2<sup>nd</sup> centile, slightly higher than quoted in the literature (29% and 41% respectively).
- 53/76 had growth charts in their notes, and 39/53 had their height and weight plotted regularly.
- 12 patients were potentially eligible for GH and not previously offered it.
- 11 patients were on or had previously received GH and were managed in line with NICE guidance.

## Conclusions

- Growth monitoring needs to be improved in renal failure patients.
- Growth failure should be highlighted in the problem list and addressed at clinic visits to improve their growth.
- 12 patients need discussing jointly by the nephrology and endocrinology teams and considering for GH.
- Patients on or who have had GH are managed appropriately.



## Impact on Practice

- 4 patients in the post-transplantation group (first group reviewed) have been offered GH and 2 families accepted it. 8 patients are currently being reviewed.
- Growth charts have been placed in all patient notes.
- Findings have been shared with the nephrology team in a local meeting to improve awareness.

## References

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