

Guidelines for the management of vitamin D deficiency in Chronic Kidney Disease

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DISCLAIMER: These guidelines were produced in good faith by the author(s) in conjunction with the paediatric nephrology team at the University Hospital of Wales, Cardiff reviewing available evidence/opinion. They were designed for use by paediatric nephrologists at the University Hospital of Wales, Cardiff for children under their care. They are neither policies nor protocols but are intended to serve only as guidelines. They are not intended to replace clinical judgment or dictate care of individual patients. Responsibility and decision-making (including checking drug doses) for a specific patient lie with the physician and staff caring for that particular patient.

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Summary

These guidelines are aimed at providing doctors looking after children with chronic kidney disease (CKD with information about maintaining optimum vitamin D levels.

Introduction

With increased awareness of the problem of biochemical vitamin D deficiency in our general population it is sensible to monitor 25(OH)D levels in children with CKD who are at risk of bone disease.

Monitoring [1]

Measure serum 25(OH)D concentration in children with CKD Stages 2–5D:

- 6–12 monthly depending on CKD stage in children not on vitamin D treatment.
- If normal levels, measure 6–12 monthly (based on previous 25(OH)D level and stage of CKD.
- If on high dose vitamin D supplementation, check levels monthly.
- Once on maintenance dose check 3-6 monthly.
- If low levels recur, consider repeat course of 'intensive replacement treatment'.

Also consider monitoring in patients with nephrotic syndrome on long term steroids.

Treatment

- Treat if total 25-Hydroxy Vitamin D < 75 nanomoles/L.
- If mildly low levels e.g. 50-75 nanomoles/L can move straight to maintenance doses.
- If <50 nanomoles/L then use higher dose.
- Continue alfacalcidol and phosphate binders

Dosage

High dose:

- < 10 kg 3,000 units/day
- 10 – 30 kg 6,000 units/ day
- 30 kg 10,000 units/day

Maintenance dose:

- < 10 kg 3,000 units / weekly
- 10 – 30 kg 6,000 units / weekly
- 30 kg 10,000 units / weekly

Preparations:

- Colecalciferol solution - 3000 units/ml (non-proprietary)
- Colecalciferol capsules - 20,000 units (therefore double dose interval if require 10,000 units)

References

1. Shroff et al. Clinical practice recommendations for native vitamin D therapy in children with chronic kidney disease Stages 2–5 and on dialysis. Nephrol Dial Transplant (2017) 32: 1098–1113