# Infantile Hypercalcemia – Still A Diagnostic And Therapeutic Enigma

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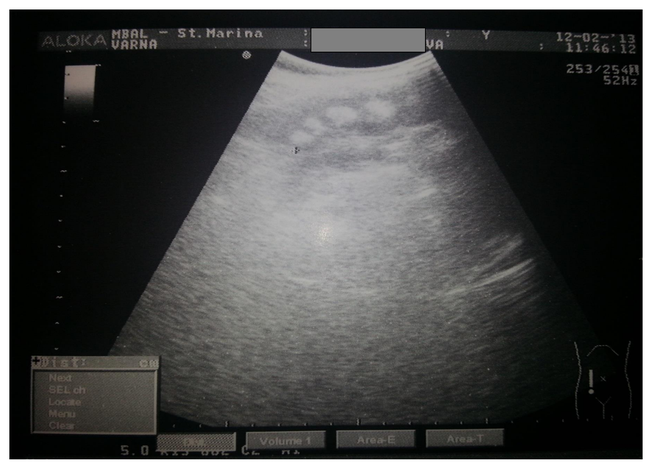
## INTRODUCTION:

- A female born from uneventful pregnancy
- Normal delivery, on term
- Weight 3600 gr, Length 52 cm.

2nd month:
blood in stools (Cow's milk allergy ?)
irritable, decreased appetite,
slow weight gain (300 g/month)

3rd month:
erythrocyturia + leucocyturia (UTI ?)

## ABDOMINAL ULTRASOUND:




Bilateral Nephrocalcinosis

## INITIAL INVESTIGATIONS:

**Ca/Creatinine ratio 1,37** (N<0.26) ⇨ Hypercalciuria

**total Calcium 3.62** mmol/l (2.08-2.65)
**ionized $Ca^{++}$ 1.59** mmol/l (1.13-1.32)
⇨ **Hypercalcaemia**

**PTH intact < 3.00** pg/ml (11-87)
⇨ PTH-dependent / **PTH-independent**

## High PTH

Primary Hyperparathyroidism

- Parathyroid adenomas/carcinomas
- Familial Isolated Hyperparathyroidism
- Multiple Endocrine Neoplasia
- HYP-JT
- Neonatal Severe Hyperparathyroidism (homozygous inactivating CaSR mutations)

Tetriary Hyperparathyroidism

- Chronic Renal Failure
- Maternal Hypocalcaemia

## Normal PTH

- Familial hypocalciuric hypercalciemia (FHH) (heterozygous inactivating CaSR mutations)

## Low PTH

- Williams-Beuren Syndrome
- Jansen's Metaphyseal Chondrodysplasia
- Malignancy: ↑ PTHrP
- Hypervitaminosis D
  - Vit D intoxication
  - Subcutaneous Fat Necrosis
  - Idiophatic Hypercalcemia of Infancy

## VITAMIN D

Регистрация: 14 08:14:16.02.2015 08:14:16 д-р Илка Топалова
Други данни:

| Група Показател | Биологичен материал | Резултат | Измерителна единица | Референтна област | Метод |
|---|---|---|---|---|---|
| **Labor Limbach, Heidelberg Germany** | | | | | |
| 1.25(OH)2 Vitamin D3 | s | 135 | ng/l | 45 - 270 | CLIA/Chemiluminescen |
| **Служебни** | | | | | |
| Забележка | - | да се върнат 11лв на пациента | | | |
| **Специфични протеини, витамини** | | | | | |
| 25-OH-Vitamin D | s | >70 | ng/ml | > 20 ng/ml | ECLIA |

При нива на 25-OH-Витамин D < 20 ng/ml - състоянието се определя като дефицит,
а при нива от 21 - 29 ng/ml, като недостатъчност.
Препоръчва се ниво на 25-OH-Витамин D > 30 ng/mL.
(US National Kidney Foundation, US National Osteporosis Foundation)
както за добро костното здраве така и за добро общо здраве.

Популационо базираните референтни граници не трябва да се приемат като критерии за започване или изключване на заместващо или допълващо лечение с витамин D

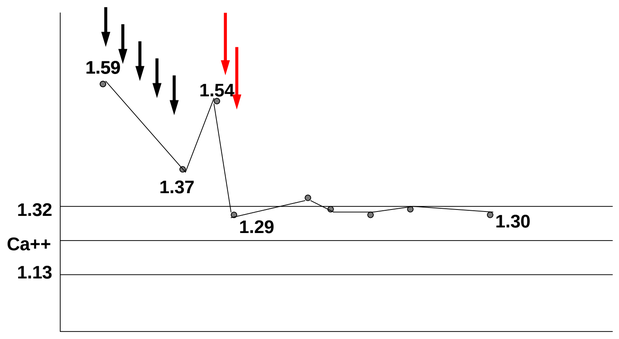
**25-OH Vitamin D > 70** (N 20-70 ng/ml)
**1,25-$(OH)_2$ Vitamin D 135** (N 45-270 ng/l)
⇨ **Hypervitaminosis D**

## IDIOPHATIC INFANTILE HYPERCALCEMIA

There was no history of familial hypercalcemia, subcutaneous fat necrosis or vitamin D intoxication.
No syndromic or dysmorphic features were found.
In the context of the new etiological causes a defect in 24-hydroxylase activity was suspected. A molecular genetic testing for mutation in the CYP24A1 gene was done in a referent center but showed negative results. At presentation, lower phosphate serum levels of 1.0 mmol/l were noticed to be present too. During the follow-up the phosphate levels slowly increased up to the lower limits of 1.6 mmol/l with TmP/GFR of 1.32, calcium levels are still on the upper limits and there is no significant progression of the nephrocalcinosis and no impairment of the renal function.

**Initial treatment:** 10 days on i.v. infusions + urbason + furantril
total Calcium **3.62** ➔ **2.68** mmol/l (2.08-2.65)
ionized $Ca^{++}$ **1.59** ➔ **1.37** mmol/l (1.13-1.32)

**PAMIDRONATE: 2 days with doses of 1 mg/kg i.v.:**
total Calcium **3.62** ➔ **2.68** ➔ **N.A.** ➔ **2.73** mmol/l (2.08-2.65)
ionized $Ca^{++}$ **1.59** ➔ **1.37** ➔ **1.54** ➔ **1.29** mmol/l (1.13-1.32)





## CONCLUSIONS:

The case is an example of the still uncovered mysteries of calcium and vitamin D metabolism. In many cases infantile hypercalcemia is still a diagnostic and therapeutic enigma.

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