VITAMIN D DEFICIENCY AS THE PRIMARY CAUSE OF NEONATAL HYPOCALCEMIA IN A TERTIARY HOSPITAL

A.Campos Martorell, L.Geronès Domingo, E.Mogas Viñals, M.Clemente León, D.Yeste Fernández, A. Carrascosa Lezcano
Division of Pediatric Endocrinology. Hospital Universitari Vall d'Hebron, Universitat Autònoma of Barcelona. Spain

INTRODUCTION: **H**ypocalcemia is a common metabolic disorder in the neonatal unit and could have severe clinical implications

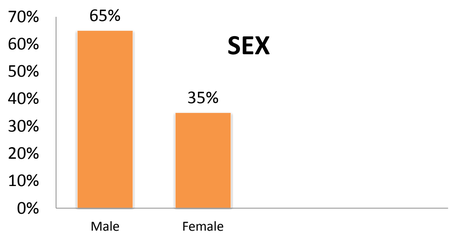
PURPOSE: The aim of this study is to collect and analyze the different etiologies of this disorder and its management.

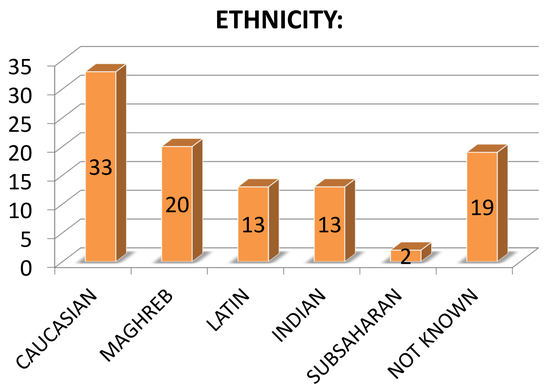
METHODS:

- Retrospective descriptive study in the period **2009-2013**
- **Inclusion criteria**:
  - Patients admitted under 28 days of age with diagnosis of hypocalcemia.
  - Calcium Plasma concentrations:
    - **Total Ca < 7.6 mg/dL**
    - **Ca ion < 4 mg/dL or < 1 mmol/L**
- Is considered Deficiency of vitamin D <20ng/ml and severe <10 ng / mL.

RESULTS

1. Characteristics of the study population

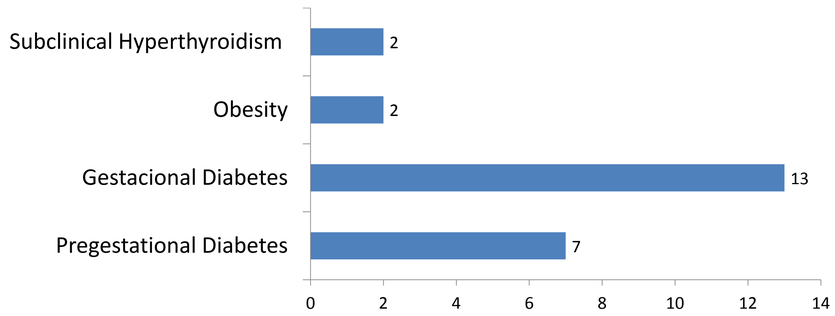




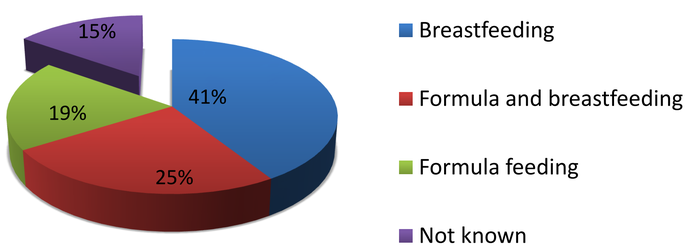
WEEKS OF GESTATION:

- **59% → Born at term (> 37 WG)**
- 22% → 34-37 WG
- 19% → < 34 WG

ENDOCRINOLOGICAL MATERNAL BACKGROUND



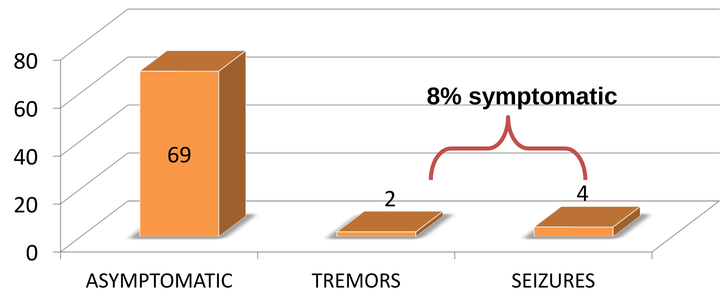
FEEDING AT ADMISION



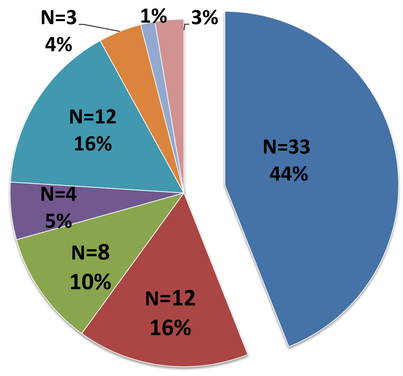
Vitamin D SUPLEMENTATION AT ADMISION:

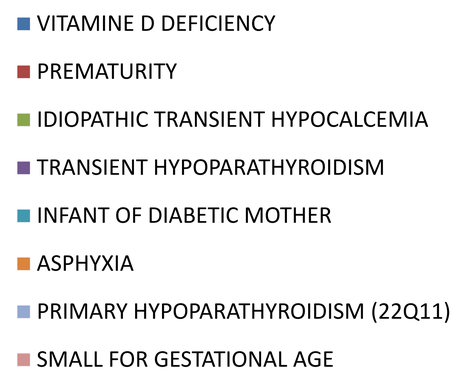
- No mother received vitamin D supplements during the gestation.
- 3 Newborn 3 received vitamin D supplementation

2. Clinical manifestations of hypocalcemia

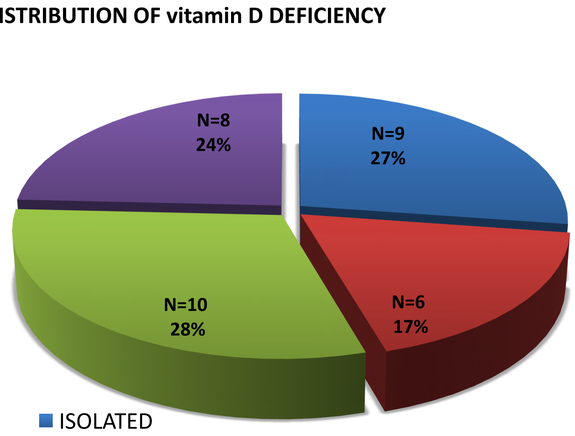


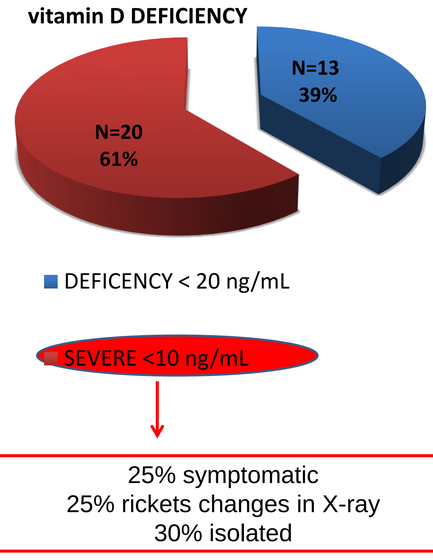
3. Etiology:





DISTRIBUTION OF vitamin D DEFICIENCY





Maternal blood analysis (20% cases): 100% severe deficiency,100% dark skinned ethnic

4. Manegement

Mean plasma Calcium at diagnosis:

- Total Ca 6,8mg/dL [5,4-7,5] • Ca ion= 0.77mmol/L [0,6-0,9]

Mean time to recover from hypocalcemia: 5.9 days [1-20]

ETIOLOGY	Mean plasma calcium (mg/dL)	Mean time to recover from hypocalcemia:
Isolated vitamin D deficiency	6.6 [5,4-7,5]	5,5 days [4-20]
Vitamin D deficiency with transient hypoparathyroidism	6.4 [5,4-7,5]	7,2 days [1-15]
Vitamin D deficiency and other patologies	7.1 [5,4-7,5]	6,3 days [1-15]
Infant of Diabetic Mother	6.9 [5,9-7,5]	6,3 days [3-15]
Prematurity	6.8 [5,5-7,5]	4,8 days [2-7]
Idiopathic transient hypocalcemia	7.2 [6,4-7,5]	3,6 days [2-6]
Transient hypoparathyroidism	7.1 [6,2-7,5]	5,5 days [5-6]

CONCLUSIONS

- The most common etiology of hypocalcemia in our sample is the deficiency of vitamin D, being in most cases associated with other pathologies
- Symptomatic patients had severe vitamin D deficiencies
- Transient hypoparathyroidism may aggravate the clinical manifestations of vitamin D deficiency, it may difficult to diagnose it, and could lenght the time to recover from hypocalcemia
- The concentrations and recovery time of calcemia vary depending on the cause (no statistically significant results)
- Would be required a screening for vitamin D levels in pregnant patients with risk factors (dark skin and little sun exposure) and supplement them if necessary, to prevent possible neonatal complications