

Rickets in young children living in a KBD endemic area in Central Tibet.

Does parathyroid hormone resistance play a role?

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Preliminary data:

- Nyemo County (Lhasa prefecture): endemic area for Kashin-Beck Disease (KBD)
- High prevalence of clinical rickets
- Hyper-reflexia
- Very low intake



Methodology:

- 2005: no vitamin D available
- 2006: some vitamin D available in the valley

	Group A	Group B
Number of children	31	22
Years	2005	2006
Age	12 – 24 months	12 – 24 months
Location	Entry of the valley	Far end of the valley

Results:

- Food consumption:
 - Fully breastfed: 0 %
 - Partially breastfed: 77 %
 - Weaned: 23 % (11 to 22 months)
 - No milk : 50 % of fully weaned children
- No clinical signs of Kashin-Beck disease
- Clinical rickets

Biological results :

- Severe hypocalcemia, low vitamin D levels, high PTH and phosphorus levels

SERUM	2005	2006	P value
Ca (mg/dl)	6.6 +/- 0.7	8.8 +/- 0.8	< 0.001
25 OH vit D (ng/ml)	12.3 +/- 4.2	27.8 +/- 12.5	<0.001
PTH (ng/dl)	412 +/- 221	117 +/- 105	<0.001
Pi (mg/dl)	10.9 +/- 1.9	10.1 +/- 1.6	0.090
BAP (U/l)	112.2 +/- 44.7	121.6 +/- 39.1	0.419

BAP: bone alkaline phosphatase

- Improvement of calcium and Vitamin D levels, reduction of serum phosphorus and PTH levels and of urinary phosphorus

URINE	2005	2006	P Value
Creatinine (mg/dl)	381 +/- 329	297 +/- 221	0.31
Ca (mg/l)	16.9 +/- 18	17.8 +/- 35.7	0.905
Ca/ creat (mg/mg)	0.071 +/- 0.0082	0.0062 +/- 0.0068	0.0673
P mg/l	64 +/- 59.7	30.4 +/- 26.3	0.012
P/ creat (mg/mg)	2.68 +/- 2.51	1.13 +/- 0.61	0.004

Conclusion:

- Clinical rickets
- Calcium and Vitamin D deficiency, biologically improved by Vitamin D supplementation
- Resistance to PTH with high serum phosphorus levels

