

PARATHYROID HORMONE, CALCITONIN AND VITAMIN D INFLUENCE ON CALCIUM, PHOSPHORUS AND MAGNESIUM LEVEL IN HEALTHY AND SICK COWS

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Summary. A study was carried out in October 2004-February 2005 with the aim to measure changes in blood serum parathyroid hormone (PTH), calcitonin (CT), 25-hydroxicholecalciferol (25-OH vitamin D) and macronutrients – calcium (Ca), phosphorus (P) and magnesium (Mg) levels in healthy and sick cows. The amounts of the parathyroid hormone and calcitonin were determined *in vitro* using the IMMULITE (USA, Diagnostic Products Corporation) analyser, by the immunometric method. Amounts of 25-hydroxicholecalciferol were determined using ELISA method. Amounts of macronutrients (calcium, phosphorus, magnesium) were measured using the Eos-Bravo analyser (Italy, Hospital Diagnostics) and reagents of the company HOSPITEX.

Cattle were divided into 3 groups of healthy cows (heifer's in-calf, dry cow's in-calf, milk producing cows) and 3 groups of sick cows (having parturient paresis, mastitis, and osteomalacia). 10-15 cows were in each group.

The investigation showed hypocalcaemia in all three groups of sick cows, the lowest amounts of calcium were in cows having parturient paresis. Hypophosphatemia and hypomagnesaemia were found in cows with osteomalacia; hypophosphatemia was characteristic for cows having parturient paresis. In healthy cow groups, the highest levels of the blood PTH was determined for the dry cows in calf, lowest – for milk producing cows. A significantly higher blood PTH level was determined for the cows having parturient paresis. The highest amounts of calcitonin and 25-OH vitamin D were in cows with parturient paresis. A negative correlation was determined between the amount of vitamin D and the amount of calcium ($r = -0.701$, $r = -0.971$).

Keywords: cow, parathyroid hormone, calcitonin, 25-OH vitamin D, Ca, P, Mg.