



ЭНДОКРИНОЛОГИЧЕСКИЙ НАУЧНЫЙ ЦЕНТР

# Metabolic changes in vitamin D deficiency

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The improvement of vitamin D status is necessary to overcome an impaired calcium-phosphorus metabolism and disturbances in other tissues functioning; safety of medical intervention should include analysis of metabolic changes.

## Methods

24 apparently healthy volunteers 24,9±2 y.o. were included in the study: Group 1 (11/24) with blood serum levels of 25(OH)D <10ng/mL and Group 2 (13/24) with 25(OH)D levels 10-20 ng/mL. Assessments were made at baseline; 3 hours; 3, 7 and 28 days after intake of 200 000 IU of cholecalciferol oil solution.

25(OH)D (ng/mL)

M ± SD (Min-Max)

Group 1 (n=11)

Group 2 (n=13)

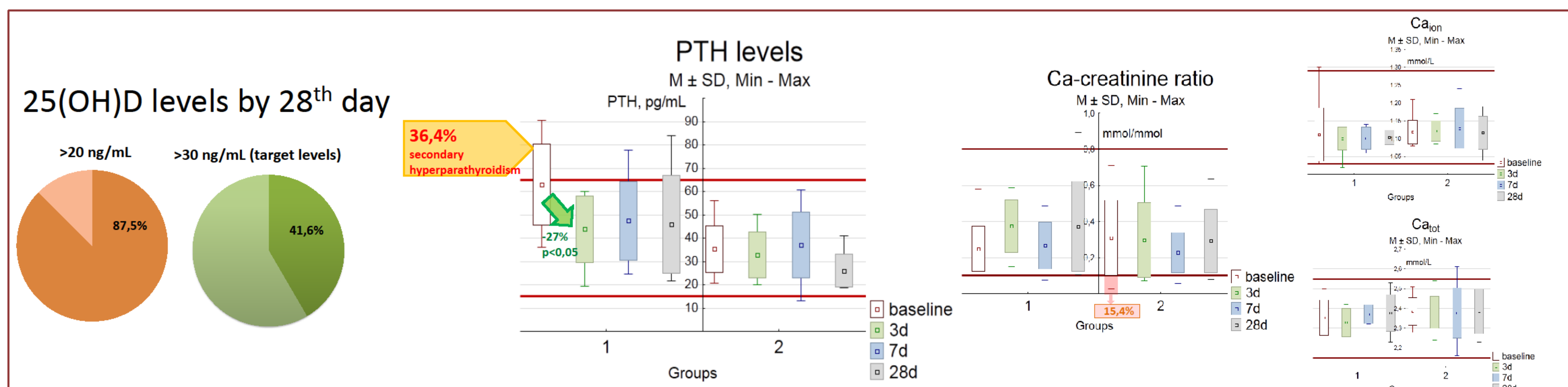
7,3 ± 2,1 (4,0-9,9)

15,1 ± 3,0 (10,7-19,5)

## Results

At baseline we observed significantly higher mean level of PTH (63,0±17,2 vs. 35,3±10,2; p<0,01) with elevation above the upper level of normal range (ULN) in 36,4% in Group 1 whereas in Group 2 levels met normal range in all individuals. Urine calcium/creatinine ratio (CCR), mmol/mmol M±SD (Min-Max): Group 1 - 0,25±0,13(0,12-0,58), Group 2 - 0,31±0,21(0,03-0,71); values were less than lower level of normal range (0,1) in 15,4% in Group 2. Blood serum Ca<sub>tot</sub>, Ca<sub>ion</sub> and P levels were not different between the groups and were within the normal range.

By 28th day 41,6% and 87,5% from all participants achieved 25(OH)D blood serum level >30ng/mL and >20ng/mL respectively. By 3d day we observed significant decrease of PTH level in Group 1 (by 27%, p<0,05). There was no significant changes in CCR during follow-up period, but in one individual we observed an increase higher than ULN (max CCR=0,89) which was transient. We also observed one case of hypercalcemia (max Ca<sub>tot</sub>=2,65 mmol/L) which wasn't associated with increase in Ca<sub>ion</sub>.



## Conclusion

High-dose oral cholecalciferol treatment for vitamin D deficiency is efficient and safe in young patients regardless of severity of vitamin D deficiency.

