

# THE NUMBER OF OXYPHIL CELLS INCREASES IN SECONDARY HYPERPARATHYROIDISM

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## OBJECTIVES

The number of oxyphil cells (OC) increases in the parathyroid glands (PTG) of patients affected by secondary hyperparathyroidism (HPT), especially if they are treated with vitamin D and/or calcimimetics (1,2). At the same time, it has been shown in an experimental model that the incubation of PTG with a high calcium medium leads to the formation of OC, consistent with the hypothesis that calcium sensing receptor (CaSR) stimulation may increase the OC number (3,4). This hypothesis has been not tested in the clinical setting. The aim of this study was to verify whether the cell populations in the PTG can be influenced by disorders of mineral metabolism as measured before parathyroidectomy (PTx).

## METHODS

We performed a retrospective analysis of all patients submitted to a first PTx, either total or subtotal, in our hospital in the last four years. Demographic and biochemical parameters of disorders of mineral metabolism, including serum ionized calcium (iCa) and calcitonin (CT) were obtained before PTx. Patients aged < 18 years and patients treated with cinacalcet were excluded from the study. Chief cells (CC), OC and transitional oxyphil cells (TOC) were evaluated by means of a semiquantitative assessment in all the histological specimens; patients were considered positive if OC and/or TOC were present in more than 5% of examined area and at least in one gland.

## RESULTS

Table 1. Demographic and biochemical characteristics of the patients

	Group 1 (CC)	Group 2 (CC+OC)	Group 3 (CC+OC+TOC)	Statistical significance *
number	20	23	22	
Age, years	40±10	52±14	54±13	n.s.
HD vintage, months	124±82	113±55	98±60	n.s.
M/F	12/8	11/12	8/14	n.s.
PTH, pg/ml	1690 ± 587	1653 ± 718	1376 ± 501	n.s.
ALP, mU/ml	295 ± 213	291 ± 186	253 ± 125	n.s.
CT, pg/ml	10.1 ± 5.6	18.4 ± 9.5	27.9 ± 16	p < 0.01
tCa, mg/dl	10.2 ± 0.6	10.52 ± 0.5	10.8 ± 0.7	p < 0.01
iCa, mmol/L	1.21 ± 0.2	1.32 ± 0.11	1.35 ± 0.1	p < 0.001
Albumin, g/dl	3.99 ± 0.4	3.97 ± 0.38	3.87 ± 0.5	n.s.
P, mg/dl	6.0 ± 1.5	6.0 ± 1.3	6.1 ± 1.1	n.s.

The study included 65 patients; the mean age and dialytic vintage were respectively: 52±13 years and 111±66 months. The patients were subdivided into three groups, according to cell distribution: group 1 (only CC), group 2 (CC+OC), and group 3 (CC+OC+TOC). There were no significant differences either in the demographic characteristics or parathyroid hormone (PTH), alkaline phosphatases (ALP), albumin and phosphate (P) serum levels among the three groups. Interestingly, total serum calcium (tCa), iCa and CT serum levels were significantly different and increased throughout the three groups (Tab.1)

\*ANOVA test

## CONCLUSIONS

The morphologic prevalence of OC and TOC in HPT was associated with statistically significant increases in serum tCa and iCa serum levels, that could provoke an increase in the CT serum levels. Uremic patients affected by HPT, being exposed to higher iCa levels, may have a shift in the phenotype of parathyroid cell populations.

## References

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