

TREATMENT WITH CINACALCET REDUCES OXIDATIVE STRESS IN HEMODIALYSIS PATIENTS WITH SECONDARY HYPERPARATHYROIDISM

Piotr Kuczera¹, Marcin Adamczak¹, Grzegorz Machnik²,
Boguslaw Okopien², Andrzej Wiecek¹

¹ Department of Nephrology, Transplantation and Internal Medicine; ² Department of Internal Medicine and Clinical Pharmacology, Medical University of Silesia, Katowice, Poland

BACKGROUND

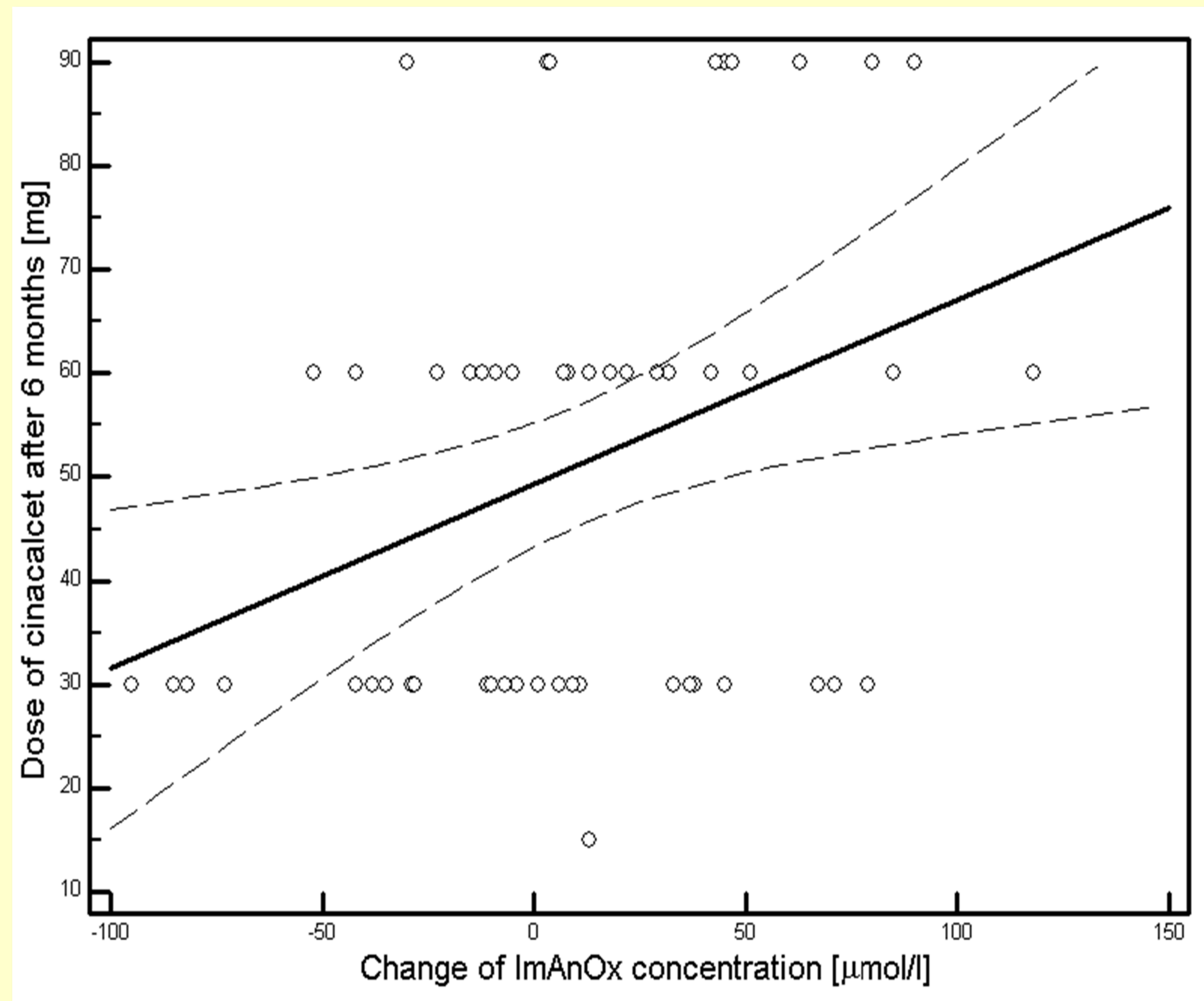
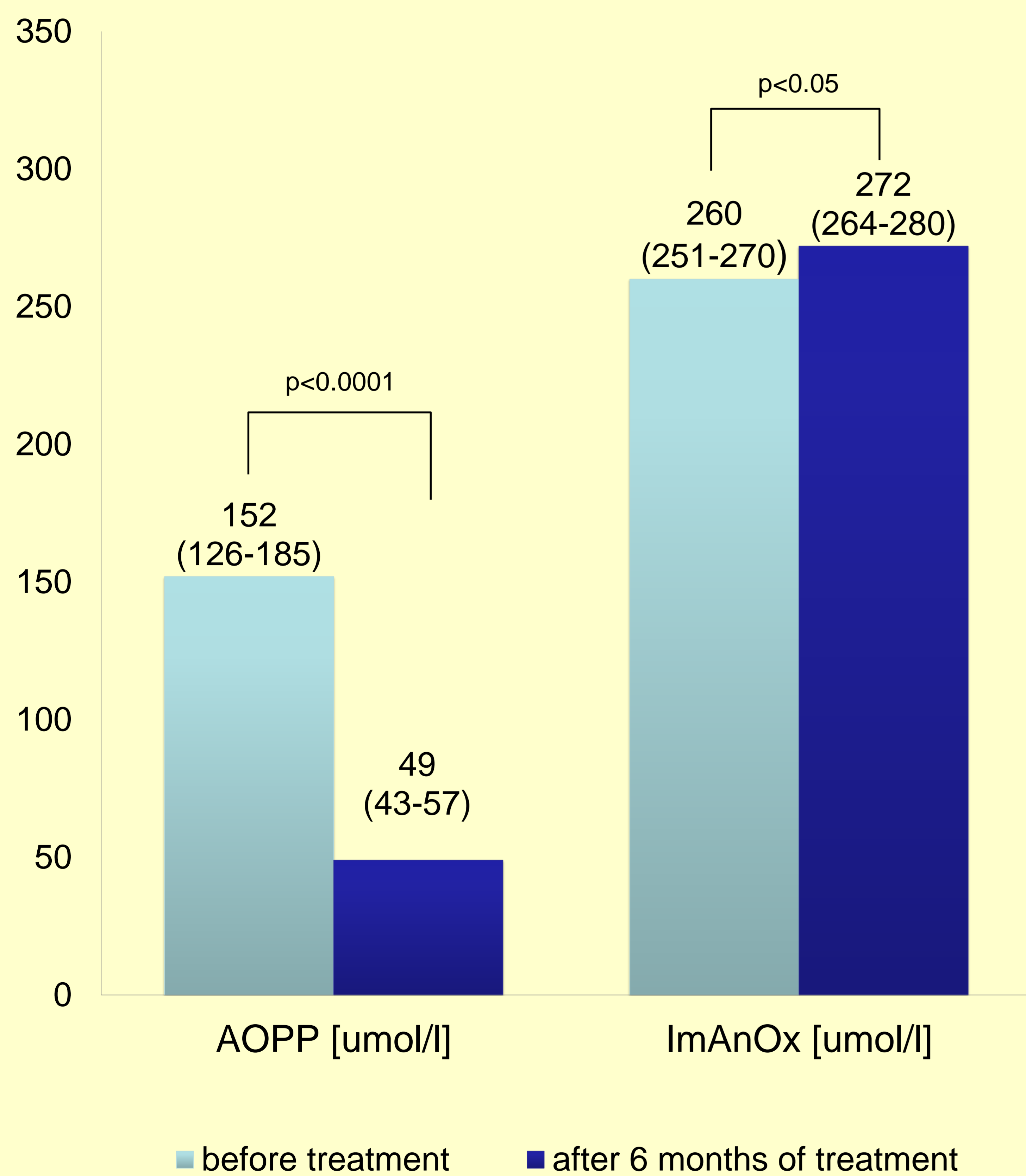
It is known that oxidative stress is one of the factors contributing to the increased cardiovascular and total mortality in patients with chronic kidney disease (CKD) and secondary hyperparathyroidism (sHPT). Cinacalcet is now commonly used in the treatment of sHPT in patients with CKD. The purpose of this prospective clinical study was to assess the influence of treatment with cinacalcet on the markers of both oxidative stress and total antioxidant capacity in patients on hemodialysis with sHPT.

METHODS

In 58 hemodialysed patients with sHPT (PTH>300 pg/ml) plasma Advanced Oxygenation Protein Products (AOPP), total antioxidant capacity – ImAnOx (TAS/TAC), serum PTH, calcium and phosphate concentrations were assessed before the first dose of cinacalcet and after 6 months of treatment. A log transformation was used to normalize the distribution of PTH, AOPP and ImAnOx concentrations, thus these results are presented as geometric means with 95% CI. Paired t-test was then used to assess the variables changes over time. Correlation coefficients were calculated using Spearman's rank correlation.

RESULTS

Serum PTH concentration decreased significantly from 895 (748-1070) pg/ml to 384 (289-510) pg/ml after 6 months of treatment; $p<0.0001$. Mean serum calcium and phosphate concentrations remained stable. Plasma AOPP concentration decreased significantly from 152 (126-185) $\mu\text{mol/l}$ to 49 (43-57) $\mu\text{mol/l}$ after 6 months of treatment; $p<0.0001$. Plasma antioxidant capacity (ImAnOx) significantly increased from 260 (251-270) $\mu\text{mol/l}$ to 272 (264-280) $\mu\text{mol/l}$; $p=0.047$. After 6 months of treatment a significant, positive correlation was found between ImAnOx and the daily dose of cinacalcet ($r=0,30$; $p=0.02$). Also the change of plasma ImAnOx during treatment with cinacalcet significantly correlated with the daily dose of cinacalcet $r=0.35$; $p=0.01$. No significant correlations were found between plasma AOPP concentration or ImAnOx and PTH, nor their changes in time, respectively.



CONCLUSIONS

Six-month treatment with cinacalcet reduces oxidative stress in maintenance hemodialysis patients with sHPT. This beneficial effect seems to be related rather to the direct action of cinacalcet than to the serum PTH concentration decrease.

