Is there a relationship between blood pressure and plasma FGF-23 concentration changes after cinacalcet treatment in hemodialysed patients with chronic kidney disease and secondary hyperparathyroidism?

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BACKGROUND

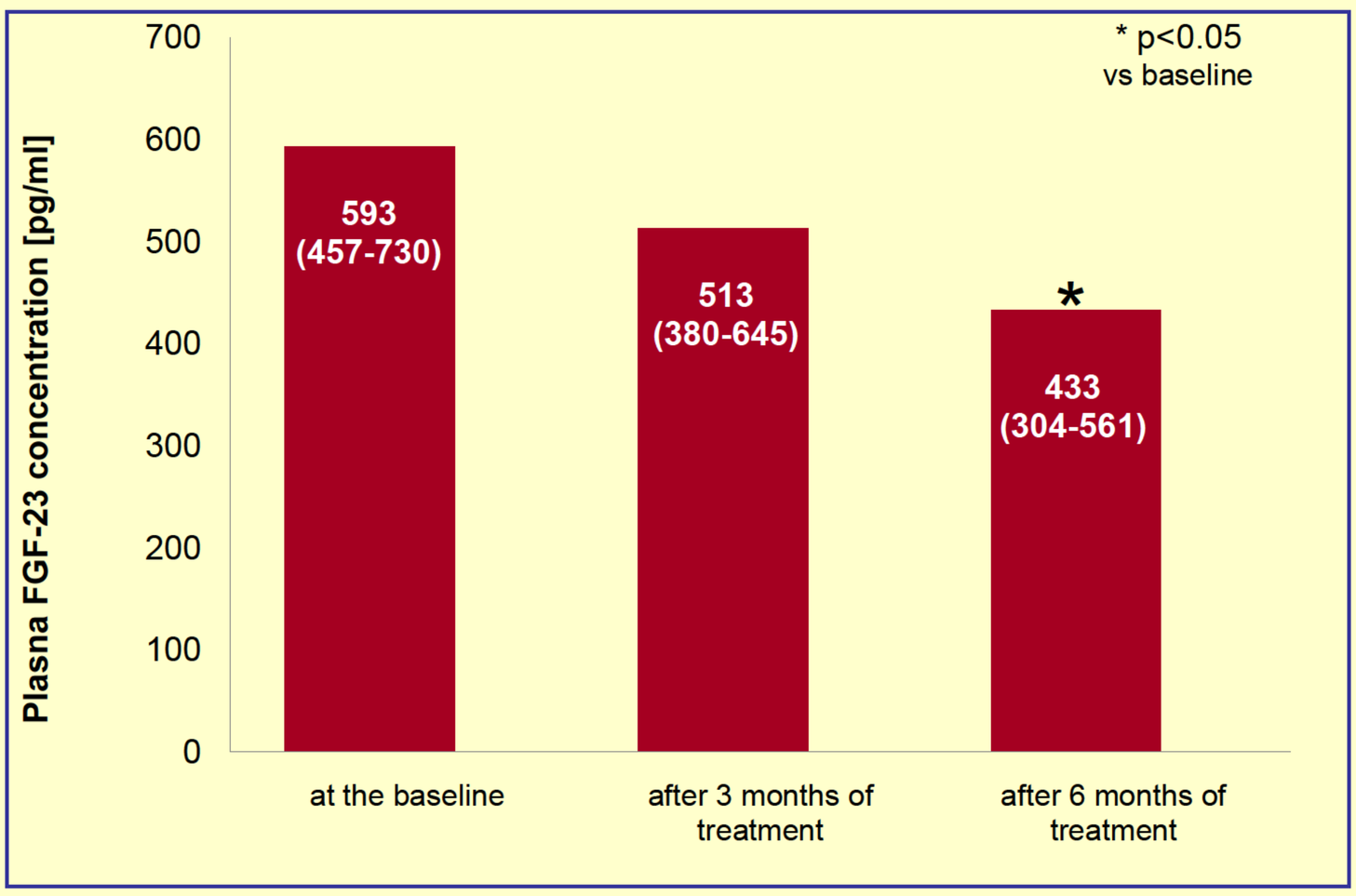
It is well known that parathyroid hormone (PTH) plays a role in the pathogenesis of arterial hypertension. Treatment with cinacalcet decreases serum PTH concentration in hemodialysed patients with chronic kidney disease (HDP) and secondary hyperparathyroidism (sHPT). The aim of this study was therefore to assess the influence of 6 month treatment with cinacalcet on plasma FGF-23 concentration and on blood pressure (BP) in HDP with sHPT.

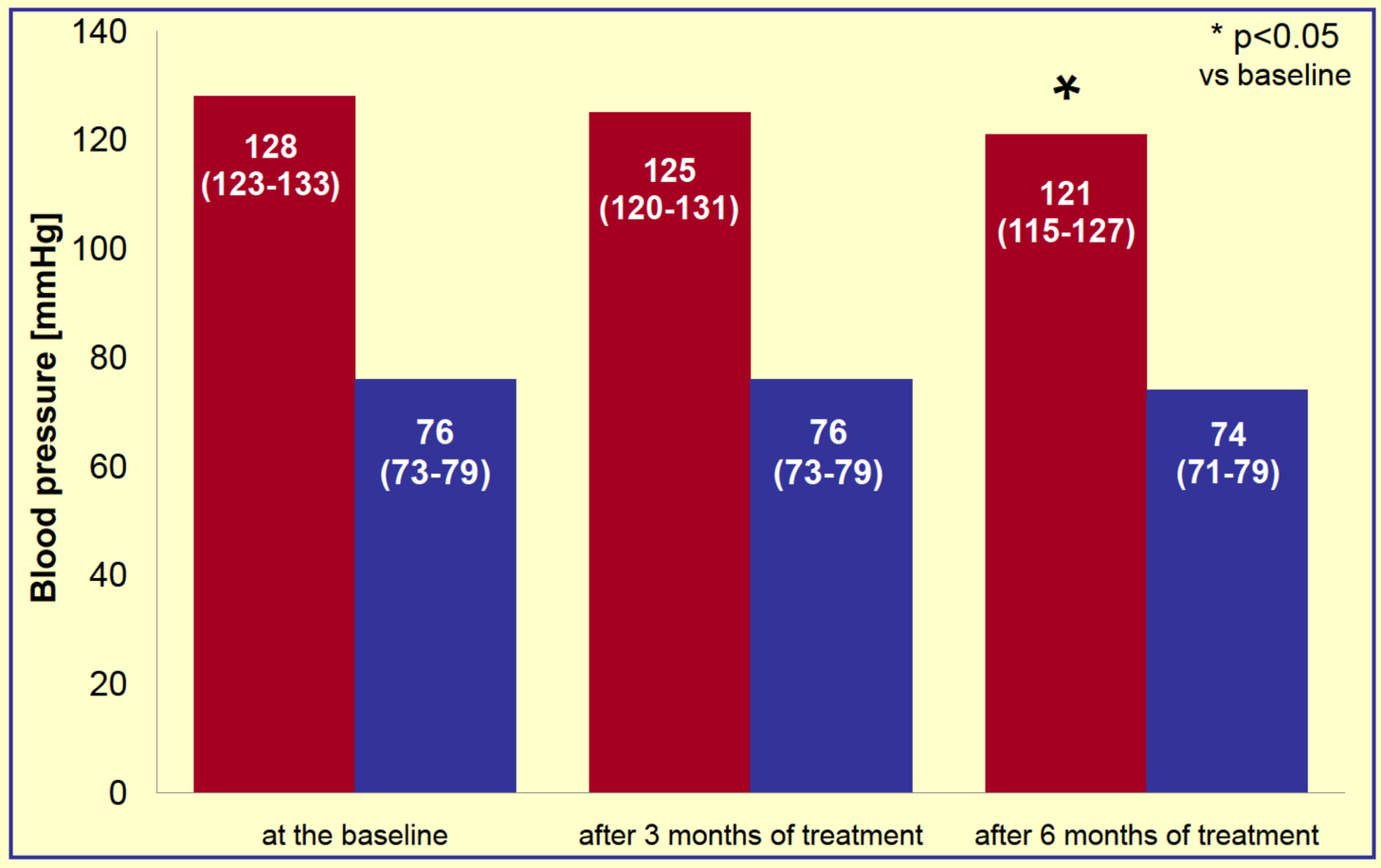
METHODS

In 58 HDP with sHPT serum PTH, fibroblast growth factor-23 (FGF-23), calcium and phosphate concentrations were assessed before the first dose of cinacalcet and after 3 and 6 months of treatment. BP was measured before hemodialysis sessions. The results were shown as means and 95% CI.

RESULTS

Serum PTH concentration decreased significantly after 3 and 6 month of cinacalcet treatment from 1138 (931-1345) to 772 (551-992); $p<0.0001$ and to 635 (430-839)pg/ml; $p<0.0001$, respectively. Plasma FGF-23 concentration decreased after 3 and 6 months of treatment from 593 (457-730) to 513 (380-645)pg/ml; $p=0,099$ and to 433 (304-561)pg/ml; $p=0,015$ respectively. Mean serum calcium and phosphate concentrations remained stable. Systolic BP decreased after 3 and 6 month of treatment from 128 (123-133), to 125 (120-131); $p=0.1$ and to 121 (115-127)mmHg; $p=0.005$, respectively. Diastolic BP did not change significantly. There were no significant differences in the number of antihypertensive drugs, alfacalcidol dose and patients' body weight during the treatment period. No significant correlation was found between changes of systolic BP and changes of serum PTH, FGF-23, calcium and phosphate concentration and both cinacalcet and alfacalcidol dose, respectively.





CONCLUSIONS

1. Six-month treatment with cinacalcet decreases systolic BP in hemodialysed patients with chronic kidney disease and secondary hyperparathyroidism. 2. Such a decrease of systolic BP seems not be related to the decrease of plasma FGF-23 concentration, however such a potential relationship needs further elucidation.

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