Renal concentration capacity in primary hyperparathyroidism and changes after surgery and during medical management and monitoring

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Objective
Primary hyperparathyroidism (pHPT) is associated with increased risk of death, and in some studies cardiovascular disorders were inversely related to urine osmolality. The aim was to evaluate the renal concentration capacity in patients with mild and severe pHPT, and its changes after surgery for pHPT and during monitoring.

Patients and methods
The study included 77 patients (median age 57 [52;61]) with pHPT, group contained patients with mild form (n=23). Osmolality index was calculated as urine osmolality to blood osmolality ratio. Renal concentration capacity impairment was diagnosed with osmolality index less than 2. Changes in osmolality index were evaluated in 13 patients after surgery for pHPT and in 13 patients during medical management and monitoring. Follow-up period was up to 24 months.

Results
Osmolality index in patients with pHPT was low with median 1.64 [1.36; 2.08]. We found a high prevalence of renal concentration capacity impairment in patients with pHPT (72%). Both patients with mild and severe pHPT had similar prevalence. Urine osmolality was Me 0.475 [0.39; 0.588] osm/kg. In patients with renal concentration capacity impairment PTH level was significantly higher than in patients with normal urine osmolality (p=0.039) (pic. 1).

Conclusions:
Renal concentration capacity impairment is common in mild and severe pHPT. Renal concentration capacity is restored after surgery for pHPT. The findings of this study add cause for measurement of urine osmolality or osmolality index in all patients with pHPT.

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