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significantly lower in hypercalciuric group compared to normocalciuric group and healthy control group ($P<0.0001$, $P=0.005$). Serum PTH levels were observed significantly higher in hypercalciuric group compared to normocalciuric group ($P=0.03$). 24-hour urinary calcium levels showed positive correlation with PTH and serum calcium levels ($r=-0.37$, $r=0.47$, $P<0.0001$) and negative correlation with femur neck and lomber BMD levels in PHPT patients. ($r=-0.23$, $P=0.001$; $r=-0.27$, $P=0.02$). Patients whose serum calcium levels were normal or mildly elevated were tested for CGR mutation and it resulted negative.

Conclusion

Our study also showed that there is positive correlation between urinary calcium levels and serum PTH levels in newly diagnosed PHPT patients. It also supports the opinion that hypercalciuria could be a marker bone loss in PHPT patients.

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EP145

Bone mineral density measurement in newly diagnosed primary hyperparathyroidism patients

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Aim

Clinical presentation of primary hyperparathyroidism (PHPT) differs between populations. In this study, we aimed to examine bone mineral density (BMD) and bone metabolism parameters in newly diagnosed and untreated PHPT patients in a single endocrine center in İstanbul, Turkey.

Methods

Consecutive 256 PHPT patients (50.7 ± 14 years, F/M:205/51) and 89 healthy controls (38.8 ± 10 years, F/M:67/22) were included in the study. Serum calcium, phosphorus, parathyroid hormone (PTH), 25(OH) vitamin D, creatinine, 24-h urinary calcium were measured. DEXA method was used for bone mineral density (BMD) measurement.

Results

Twenty percent of PHPT patients were symptomatic and nephrolithiasis was shown in 20.3% of the patients. Serum calcium levels were 11.2 ± 1.3 mg/dl and 9.6 ± 0.3 mg/dl ($P<0.0001$), serum PTH levels were 273.4 ± 374 pg/ml and 61.3 ± 28 pg/ml ($P<0.001$) and serum 25OH D levels were 21.9 ± 20.1 ng/ml and 10.4 ± 7.1 ng/ml ($P<0.0001$) for PHPT and control groups respectively. 24-h urinary calcium levels were 294.4 ± 213.9 mg/day in PHPT group and 137 ± 69.2 mg/day in healthy control group ($P<0,0001$). Femur neck BMD were 0.82 ± 0.15 g/cm^2 and 0.98 ± 0.14 g/cm^2 ($P<0.0001$) for PHPT and control groups respectively. Femur neck and lumber BMDs, T and Z scores were observed significantly lower in PHPT group compared to healthy controls group ($P<0.0001$). Femur neck and lumber BMD levels showed negative correlation with PTH in PHPT patients ($r=-0.37$, $P<0.0001$). There were osteoporosis in 13.4 percent (n:34) and osteopenıa in 9.9 percent (n:25) of PHPT patients.

Conclusion

In our group of patients osteoporosis was diagnosed lower than expected but BMD measurements were lower in PHPT group. The results of this study show that bone turnover is increased and bone mineral density is decreased in PHPT patients, as stated in previous studies.

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EP146

Serum calcium to phosphorous ratio (Ca/P) as a simple, inexpensive screening tool in the diagnosis of primary hyperparathyroidism (PHPT)

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Background

PHPT is often overlooked/underdiagnosed. Several strategies (biochemical markers alone or combined in complex algorithms) have been investigated to easily diagnose/screen PHPT, but PHPT diagnosis remains challenging at present, especially in asymptomatic patients. As serum calcium (Ca) and phosphorous (P) are inversely related in PHPT, the Ca/P ratio could be a good candidate tool for PHPT diagnosis. Surprisingly, no literature data on Ca/P ratio are available, despite they are very simple biochemical measurements largely available in any clinical lab setting.

Aim

To investigate the Ca/P ratio diagnostic value in the diagnosis of PHPT.

Methods

Data retrospectively obtained from review charts of 97 patients with documented PHPT (69 females; 28 males) [16 (17%) with severe hypercalcemia (>12 mg/dl); 44 (45%) mild hypercalcemia, 36 (38%) normocalcemic PHPT (NCHPT)] were compared with those of 96 controls (C) (44 females; 52 males). Exclusion criteria: age <18 years, severe chronic diseases, cancer, bone metabolic diseases, use of medications affecting serum Ca. Biochemical measurements: PTH, Vitamin D, serum Ca, P, albumin, and creatinine. Normal ranges: PTH (15–88 pg/ml), Ca (8.5–11 mg/dl), P (2.5–5.1 mg/dl). SPSS 19.0 and SigmaPlot 11.0 were used for statistics (group comparisons, ROC curves, cutoffs performance).

Results

Ca and PTH were significantly higher in PHPT [(Ca median:11; min-max:9.4–15.5); (PTH 135.2; 57.6–1748)] than C [(Ca 9.4; 8.3–10.2); (PTH 32.1; 14–106.1) ($P<0.0001$). P was significantly lower in PHPT (2.4; 1.4–3.9) than in C (3.5; 2.1–4.5) ($P<0.0001$). Ca/P ratio was significantly higher in PHPT than in C. ROC curves analyses identified a cutoff of 3.5 for both Ca/P ratio and Ca/P ratio obtained by using albumin corrected-Ca. The sensitivity and specificity were 86 and 87%, respectively for Ca/P ratio and 89 and 93%, respectively for corrected Ca/P ratio ($P<0.0001$). The diagnostic value of Ca/P ratio performed better than PTH and Ca used alone or in combination.

Conclusions

Ca/P ratio is a valuable highly sensitive, highly specific tool for the diagnosis of PHPT. Since Ca/P is simple to obtain, easily accessible in every clinical and lab setting worldwide, and inexpensive even when used in large sample size of patients, this diagnostic tool could be useful for screening PHPT, especially in patients accessing emergency rooms or in the general practitioner setting.

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EP147

Vitamin D status in infants during the first 9 months of age and its effect on growth and other biochemical markers: a prospective cohort study

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Background

We planned this prospective cohort study in term newborn babies, with the objective to determine the incidence of vitamin D deficiency in infancy and to determine the level of vitamin D which triggers the physiological PTH axis of the body so as to differentiate truly deficient from sufficient vitamin D status.

Methods

96 participants at birth were enrolled and followed up till 9 months of age. Serum 25OHD was estimated in cord blood at birth and at 14 ± 1 weeks of life. 77 participants were followed up at 9 months for estimation of serum 25OHD, PTH, Alkaline phosphatase (ALP), calcium and phosphorus. Vitamin D deficiency was defined as serum 25OHD, PTH, Alkaline phosphatase (ALP), calcium and phosphorus. Vitamin D deficiency was defined as serum 25OHD.

Results

Serum 25OHD levels at 9 months of age (15.78 ± 8.97 ng/ml) were significantly increased in comparison to the level of 3 months of age (14.04 ± 7.10 ng/ml) and at birth (8.94 ± 2.24 ng/ml). At birth all the participants (77) were deficient in 25OHD levels. It was found that 16/94 (17%)and 19/77 (24.7%) participants at 3 and 9 months of age respectively became vitamin D sufficient without any vitamin D supplementation. There was a significant inverse correlation between serum 25OHD and PTH concentration ($r=-0.522$, $P<0.001$) serum 25OHD and ALP($r=-.501$, $P<0.001$). It was found that reduction in serum vitamin D level to below 10.25 ng/ml results in surge of serum PTH.

Conclusion

Vitamin D deficiency is common from birth to 9 months of age but incidence decreases spontaneously even without supplementation. Also large number of babies may be falsely labelled as vitamin D deficient with currently followed cutoffs. So a new cutoff for vitamin D deficiency needs to be established for neonates and infants.

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