SHORT AMMONIUM CHLORIDE LOADING TEST FOR EVALUATION OF HYPERPARATHYROIDISM

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The dilemma in the diagnosis of hyperparathyroidism (HPT) is reflected by three factors: Hypercalcemia is still regarded as the most important diagnostic sign, but unless multiple determinations of serum calcium are done, the so-called borderline cases will be missed. Tests that readily identify HPT combine either simple performance, widespread use and low accuracy ($C_p$, TRP, PEI, $T_M$/GFR) or sophisticated methods, limited use and high accuracy (PTH, $Ca^{++}$, $c$-AMP). Consequently, some authors perform neck explorations to cure patients with recurrent nephrolithiasis who do not fulfill the diagnostic criteria of HPT. However, the stone recurrence rate may then reach 75%. In this situation, to complete the diagnostic puzzle of hyperparathyroidism additional information is valuable.

PATIENTS AND METHODS

Twenty-five patients with recurrent calcium nephrolithiasis were evaluated metabolically during a 4-day test. Previously recorded values of serum calcium were elevated in 5 (Group A) and normal in 20 (Group B). The two patient groups did not differ significantly in age, sex, weight, height or $C_{cr}$, which was normal in all cases.

One week prior to and during the test, 250 mg Ca/day was given, except for an additional 2 g calcium on day 2 and 1 g calcium on day 3. On day 4, 165 mg NH$_4$Cl per kg as crushed tablets was given at breakfast. Fasting blood samples were drawn each day for the determination of calcium, phosphate and creatinine. On day 1, a 24-hour urine was collected for the calculation of $C_{cr}$, $C_p$, TRP and PEI. Hourly portions of urine were collected during 7 hours after NH$_4$Cl.

L. H. Smith et al. (eds.), Urolithiasis
loading for the determination of calcium. Student's t-test was used for statistical analysis.

RESULTS

Table 1: Oral NH₄Cl loading induced a variable degree of hypercalciuria in all patients. This was most pronounced in Group A patients, who showed higher peak values of calcium excretion and a more persistent hypercalciuria.

Table 1. Calcium excretion profiles after NH₄Cl loading in 25 stone patients.