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 (C₉, TRP, PEI, T₉P/GFR)¹ 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%²,³. 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 Cₛr, 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 NH₄Cl per kg as crushed tablets was given at breakfast⁴. 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 Cₛr, C₉, TRP and PEI. Hourly portions of urine were collected during 7 hours after NH₄Cl.
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.