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Uric Acid in Primary Hyperparathyroidism: Assessment of Surgical versus Conservative Approach

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Abstract

Introduction: Although suggested in early papers, the association between primary hyperparathyroidism (PHPT) and hyperuricemia is still debated, as is the potential benefit of parathyroidectomy compared to conservative treatment in serum uric acid (SUA) metabolism.

Material and Methods: Our retrospective study of 125 Caucasian PHPT patients with surgical criteria evaluated between 2017 and 2021 at Elias Emergency and University Hospital, Bucharest, Romania aims to describe the characteristics of hyperuricemia in PHPT patients and to assess the differences in SUA levels between 38 surgically cured and 41 conservatively managed patients.

Results: Our hyperuricemic PHPT patients (N=34) had significantly higher levels of calcium (11.55[11.05;12.42] vs. 11.2[10.8;11.96], p=.039) than the normouricemic subjects (N=91). At baseline, SUA correlated with age, serum total calcium (p=.004, r=.328), creatinine, triglycerides, and magnesium levels. A linear regression model identified calcium as a covariate with unique contribution for SUA variability. After successful parathyroidectomy, the 38 cured patients showed significantly lower serum calcium (9.3[8.7;9.75] vs. 11.55[11;12.12], p<.001) and SUA (4.95[3.52;6.3] vs. 5.65[4.49;7.45], p=.011) levels compared to baseline.

Conclusions: Hyperuricemic PHPT patients have significantly higher levels of serum calcium, which is also an independent determinant of SUA variability. Patients who undergo successful parathyroidectomies show a significant decrease in SUA during 1 year of follow-up.

Key words: primary hyperparathyroidism, serum uric acid, hyperuricemia, hypercalcemia, parathyroidectomy