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Title

Underdiagnosis of Primary Hyperparathyroidism—The Need for a System-Level Fix

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Journal

JAMA Surgery, 155(9)

ISSN

2168-6254

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Publication Date

2020-09-01

DOI

10.1001/jamasurg.2020.2448

Peer reviewed

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Invited Commentary

Underdiagnosis of Primary Hyperparathyroidism—The Need for a System-Level Fix

Quan-Yang Duh, MD; Insoo Suh, MD; Marshall L. Stoller, MD

Historically, nephrolithiasis was the most common manifestation of primary hyperparathyroidism. In a 1966 review of the first 343 cases of hyperparathyroidism at the Massachusetts General Hospital, Oliver Cope found kidney stones to be the most common clue to the diagnosis of hyperparathyroidism, occurring in 57% of cases.¹ Although evaluation for osteoporosis and routine calcium testing are more commonly performed today for presentations of primary hyperparathyroidism, nephrolithiasis remains a strong indication for parathyroidectomy because of

its well-documented advantages of decreasing urinary calcium and risk of future stone attacks.^{2,3}

In this issue of *JAMA Surgery*, Ganesan and colleagues⁴ analyzed the Veterans Health Administration (VHA) database from 2008 to 2013 and found that only 24.8% (1873) of the 7561 patients with both hypercalcemia and kidney stones had their serum parathyroid hormone (PTH) level measured. Using the same VHA database, a study by Alore and colleagues⁵ also found a low rate (24%) of PTH testing in patients with chronic hypercalcemia, regardless of symptoms. One may have expected a higher rate of PTH testing in the subgroup with kid-



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ney stones, but this was not the case. Calcium level was tested in 88% of patients with kidney stones.⁵ Why was there a gap at the step of PTH testing?

This gap exists not because of the lack of excellent guidelines because many have been published by various specialty societies.² Neither is this gap a VHA-specific issue, given that a similar underdiagnosis rate has been documented in non-VHA tertiary academic centers and other large systems.⁶ The study by Ganesan and colleagues⁴ offers some clues that may help remedy the problem. PTH testing was 2-fold to 5-fold higher among those who had appointments with specialists such as nephrologists, urologists, and endocrinologists. This specialty care also partially explains the wide variability (4%-57%) in testing rates at different VHA facilities. Perhaps these specialists were more likely to recognize the possibility of hyperparathyroidism, or perhaps the same primary care physicians who recognized this disease also tended to refer to specialists. This finding suggests how we may solve the problem of underdiagnosis.

The VHA is an integrated health care system that pioneered the electronic medical record system, which makes studies like that by Ganesan and colleagues⁴ possible.

Compared with others, VHA patients are less likely to be lost to follow-up or to avoid tests or referrals because of cost. Thus, a simple potential solution may be to create an electronic medical record function that automatically alerts a clinician to order PTH testing whenever a patient with nephrolithiasis is found to have hypercalcemia.

Some additional issues were raised by Ganesan and colleagues.⁴ First, not all kidney stones were calcium based. Second, 24-hour urinary calcium excretion was a crucial part of the workup; without it, the findings of hypercalcemia could not be interpreted, especially in patients using thiazide diuretic drugs. Third, the rate of parathyroidectomy was disappointingly low, even when primary hyperparathyroidism was diagnosed.

Several controversies have emerged regarding possible overdiagnosis and surgical overtreatment of some endocrine conditions, such as thyroid nodules, papillary thyroid microcarcinoma, and adrenal incidentaloma. Primary hyperparathyroidism poses the opposite problem. This study by Ganesan and colleagues⁴ has not only shown that primary hyperparathyroidism is considerably underdiagnosed but also suggested a system-level remedy for the problem.

ARTICLE INFORMATION

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Published Online: July 29, 2020.
doi:10.1001/jamasurg.2020.2448

Conflict of Interest Disclosures: Dr Suh reported receiving personal fees from Medtronic, Prescient Surgical, and GLG outside the submitted work. No other disclosures were reported.

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