Vitamin D testing

Naveed Sattar and colleagues (Jan 14, p 95)[1] appeal to clinicians to adopt an evidence-based approach to vitamin D testing to conserve financial and laboratory resources. In Auckland, New Zealand, annual requests for vitamin D measurement quadrupled between 2000 (8500) and 2010 (32 800).[2] In 2010, 61% of test requests were generated by 9% of requesting practitioners.[2] Only 15% of tests identified a serum 25-hydroxyvitamin D concentration less than 25 nmol/L.[3]

The progressive increase in test requests continued despite the addition to the laboratory report form of information on the cost of the assay and advice on a rational approach to testing. In 2011, in the face of a total annual laboratory cost of about NZ$1 million for vitamin D testing alone, a decision was made to restrict direct access to the test to a limited range of clinicians or for the investigation of metabolic bone disease or hypocalcaemia. The restriction was applied in October, 2011, resulting in a rapid and substantial reduction in tests done (table).

Evidence-based appeals, although laudable, might be insufficient to change expensive and unnecessary laboratory test-requesting practices.

We declare that we have no conflicts of interest.

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	Number of tests done
July	2670
August	2200
September	2363
October	884
November	563
December	592

Restrictions on testing were implemented in October.

Table: **Vitamin D tests done in Auckland, New Zealand in 2011, by month**

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1 Sattar N, Welsh P, Panarelli M, Forouhi NG. Increasing requests for vitamin D measurement: costly, confusing, and without credibility. *Lancet* 2012; **379:** 95–96.
2 Bolland MJ, Grey A, Davidson JS, Cundy T, Reid IR. Should measurement of vitamin D and treatment of vitamin D insufficiency be routine in New Zealand? *N Z Med J* 2012; **125:** 83–91.
3 Bolland MJ, Chiu WW, Davidson JS, et al. The effects of seasonal variation of 25-hydroxyvitamin D on diagnosis of vitamin D insufficiency. *N Z Med J* 2008; **121:** 63–74.

Naveed Sattar and colleagues[1] urge clinicians to stop and think critically before measuring 25-hydroxyvitamin D concentrations, mainly because of the lack of evidence from randomised clinical trials. There is another reason to do so: measurement of concentrations of circulating 25-hydroxyvitamin D routinely and accurately is still a challenge.

Numerous commercial assays are available, and important inconsistencies in performance have been reported owing to several different causes (eg, occasional changes of antibody, or the reformulation of reagents).[2] Inconsistencies were so important that, after assessment of long-term data from the US National Health and Nutrition Examination Survey (NHANES), and the observation of normative data shifts between surveys, the NHANES laboratory developed and validated an in-house liquid chromatography–tandem mass spectrometry (LC-MS/MS) method to replace the commercial immunoassay that was found to have given inconsistent results.[3]

In routine clinical care, where multiple laboratories are involved, these inconsistencies are expected to be even more important and to lead clinicians to irrelevant decisions. Snellman and colleagues[4] measured serum samples from 204 patients in three different laboratories by use of different methods. The proportion of patients identified as vitamin D insufficient (<50 nmol/L) varied from 8% to 43%. An external proficiency programme (Vitamin D External Quality Assessment Scheme [DEQAS][5]) has been developed internationally.

Until a better standardisation is achieved in routine practice, we urge clinicians not only to stop and think critically before ordering a 25-hydroxyvitamin D test, but also to give special attention to the choice of a DEQAS-accredited laboratory that uses the most accurate method (LC-MS/MS) when possible.

We declare that we have no conflicts of interest.

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1 Sattar N, Welsh P, Panarelli M, Forouhi NG. Increasing requests for vitamin D measurement: costly, confusing, and without credibility. *Lancet* 2012; **379:** 95–96.
2 Farrell C-JL, Martin S, McWhinney B, Straub I, Williams P, Herrmann M. State-of-the-art vitamin D assays: a comparison of automated immunoassays with liquid chromatography–tandem mass spectrometry methods. *Clin Chem* 2012; **58:** 531–42.
3 Yetley EA, Pfeiffer CM, Schleicher RL, et al. NHANES monitoring of serum 25-hydroxyvitamin D: a roundtable summary. *J Nutr* 2010; **140:** S2030–45.
4 Snellman G, Melhus H, Gedeborg R, et al. Determining vitamin D status: a comparison between commercially available assays. *PLoS One* 2010; **5:** e11555.
5 Carter GD, Carter R, Jones J, Berry J. How accurate are assays for 25-hydroxyvitamin D? Data from the International Vitamin D External Quality Assessment Scheme. *Clin Chem* 2004; **50:** 2195–97.

Naveed Sattar and colleagues[1] highlight the rising number of requests for serum 25-hydroxyvitamin D measurement, but provide no evidence to support their contention that much of the volume of requests arises from asymptomatic patients and that the assays are therefore unhelpful.

We too noted a similar local increase (about 400%) in requests from primary care between the last quarter of 2009 and the same period in 2010. But the clinical reasons for request given, including fatigue, myopathy, low-trauma fractures, and raised alkaline phosphatase concentration, are generally appropriate. Indeed it would be unwise, and expensive,