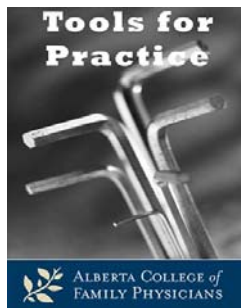


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What's the approach to Vitamin D: Trend or Treat?

Clinical Question:

In patients ≥ 50 years old, what are the benefits of vitamin D treatment and what is the evidence to test?

Evidence

Three systematic reviews and meta-analysis outline the benefits of Vitamin D in older patients (almost all ≥ 50 years old, most ≥ 60).

- Fracture (19 trials)¹: High dose (>400 IU/day) Vitamin D reduced
 - Non-vertebral fractures 1.1% ($p < 0.001$), number needed to treat (NNT) 93
 - Hip fractures by 0.6% ($p = 0.02$), NNT 168
- Falls (5 trials)²: Reduced 7% ($p = 0.007$), NNT 15
 - Proposed mechanism is improved muscle strength and postural stability.
- Mortality (18 trials)³: Significantly reduced overall mortality by approximately 0.4%, NNT 147 (based on adequately powered studies).
- Study¹⁻³ doses varied but the most common was 800 IU.

Context

- Enrolment of trials in these meta-analyses was NOT based on Vitamin D levels.¹⁻³
- Vitamin D insufficiency is variably defined but frequently cited at < 75 nmol/L⁴⁻⁶
- Vitamin D insufficiency is highly prevalent in North America and Europe. Examples
 - Calgary study⁵, 97% had levels < 80 nmol/L at least once/year
 - UK study⁶, 87% had levels < 75 nmol/L at least once/year.
 - USA study⁷, 77% had levels < 75 nmol/L
- In his often quoted review of Vitamin D deficiency, Dr Holik does not recommend screening but does recommend daily Vitamin D of 800 IU.⁴ A 1000 IU dose may be more convenient.
- Although vitamin D supplementation has not been demonstrated to have increased adverse events, most trials were not adequately designed to assess long-term harms.⁸
- Clinicians can be reassured to treat older patients without prior testing based on:
 - Most patients will have Vitamin D insufficiency⁵⁻⁷

- Multiple trials have enrolled thousands of patients and found treating them on spec to be beneficial¹⁻³

None of the large trials with hard outcomes enrolled patients based on Vitamin D levels or modified treatment based on levels.⁹

Bottom-line: The present evidence supports the use of Vitamin D around 800 IU to reduce fractures, falls and overall mortality in older patients (likely ≥50 years old). There is currently no high level evidence to support regular testing older patients for Vitamin D insufficiency.

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