From NAMS: An Interview With JoAnn Manson on Vitamin D and Calcium

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On December 1, 2010, the Institute of Medicine released its 2011 Report on Dietary Reference Intakes for Calcium and Vitamin D. One of its authors, JoAnn E. Manson, MD, DrPH, agreed to answer some questions for NAMS.

Q: What aspects of the updated IOM report are most important for clinicians to know about?

A: The IOM committee conducted a comprehensive and rigorous review of the scientific evidence and found compelling evidence to support a role for vitamin D and calcium in bone health. However, the committee concluded that the evidence that vitamin D prevented cancer, heart disease, diabetes, autoimmune diseases, and other non-bone health outcomes was inconsistent and inconclusive as to causality, and recommended more research in these areas including large randomized clinical trials (RCTs). Overall, the conclusion was that the majority of Americans and Canadians are receiving adequate amounts of both calcium and vitamin D and that the prevalence of vitamin D deficiency in the population has been overestimated. For both vitamin D and calcium intake, more is not necessarily better.

Q: How much vitamin D should peri- and postmenopausal women be getting? Do they need a supplement?

A: For women ages 50 to 70, the committee set the Recommended Dietary Allowance (RDA) for vitamin D at 600 IU/d, corresponding to a serum 25(OH)D level of 20 ng/mL and higher. This amount of vitamin D from diet and/or supplements is sufficient for the majority (97.5%) of women in this age group in North America. The RDA was set at 800 IU/d for ages 71 and over due to greater variability in intake requirements in the older age groups. An intake of 4,000 IU/d, corresponding to a serum 25(OH)D of 50 ng/mL, was set as the Tolerable Upper Intake Level (UL), where risks of adverse effects may begin. As with many other nutrients, risks have been found at both low and high levels of intake, consistent with a “U-shaped” curve. We should consider the lessons from studies of other nutrients as cautionary tales. For example, high-dose beta-carotene and vitamin E looked promising in observational studies, but benefits were not confirmed in RCTs and risks of high-dose supplements were identified (lung cancer among smokers for beta-carotene and hemorrhagic stroke for vitamin E).

It is also important to note that the committee assumed conditions of minimal or no sun exposure in deriving the RDAs, due to wide variability in vitamin D synthesis from ultraviolet light and the risks of skin cancer. Thus the RDAs should apply broadly to the North American population even during winter months, at higher latitudes, and among groups with darker skin pigmentation. However, this does not mean that no one will require vitamin D supplements to reach these blood levels of 25(OH)D and the IOM guidelines do not preclude clinicians making such recommendation for individual patients. The committee did not, however, endorse increasing exposure to solar radiation as a means to boost blood levels of vitamin D.

Q: Calcium recommendations by the IOM did not really change but vitamin D did. Why?
A: Substantial research on calcium balance, as well as RCTs of calcium and bone health, have been available for many years. The research on vitamin D, however, has really burgeoned in recent years so the state of evidence has changed more for vitamin D than for calcium since the last IOM report.

Q: How should women with osteoporosis proceed in light of the new guidelines?

A: The IOM DRIs are public health recommendations for generally healthy populations. Management of osteoporosis would not necessarily change based on the IOM report. However, professional societies dedicated to the management of osteoporosis, and to the development of clinical practice guidelines for osteoporosis, should include information from the IOM report in their future deliberations and guideline updates.

Q: What future research in this area do you anticipate? What’s next?

A: Much more research is needed on the role of vitamin D in preventing extraskeletal outcomes including cancer, heart disease, diabetes, cognitive decline, depression, infections, and autoimmune diseases. Large-scale RCTs of moderate to high doses of vitamin D will help provide conclusive evidence as to whether a cause-and-effect relationship exists and whether the benefits outweigh the risks. Such trials are ongoing, including the VITamin D and OmegA-3 TriAL (VITAL) (www.vitalstudy.org) in which 20,000 men (ages ≥60) and women (ages ≥65) are being recruited nationwide. Also, we need more research on the role of obesity, skin pigmentation, and genetic factors in influencing needs for vitamin D.

Q: Are there any questions we haven't asked that you think would be helpful for clinicians?

A: Clinicians should be aware that the cut-points for vitamin D “deficiency” or “insufficiency” vary from lab to lab and often are not evidence-based. We encourage professional societies to develop evidence-based consensus cut-points to avoid problems with both undertreatment and overtreatment. The “epidemic” of vitamin D deficiency in North America has been greatly exaggerated due to such problems.

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