Supportive Care

IMF HOTLINE COORDINATORS ANSWER YOUR QUESTIONS

The IMF Hotline 800-452-CURE (2873) consistently provides callers with the best information about myeloma in a caring and compassionate manner. The Hotline is staffed by Nancy Baxter, Debbie Birns, Paul Hewitt, and Missy Klepetar. The phone lines are open Monday through Friday, 9AM to 4PM (Pacific Time). To submit your question online, please email TheIMF@myeloma.org

I have read several articles about vitamin D supplementation. As a multiple myeloma patient, I am curious if vitamin D deficiency plays a role in myeloma?

Vitamin D is a hormone produced by the skin when it is exposed to ultraviolet B radiation from sunlight. It can also be ingested from dietary sources (vitamin D-fortified dairy products, fatty fish, eggs, and meat) and oral supplements. Vitamin D is essential for the metabolism of calcium and for skeletal health. According to studies published in the Archives of Internal Medicine in 2007 and the Journal of the American Geriatric Society in 2009, higher vitamin D levels have also been associated with increased longevity.

People at risk for vitamin D deficiency include those who have inadequate sun exposure, inadequate dietary intake, severe liver disease, kidney problems, or malabsorption because of one of a number of gastrointestinal issues. Certain antiepileptic medications can also cause low levels of vitamin D. The Centers for Disease Control reports that the percentage of Caucasian adults who have adequate levels of vitamin D declined to approximately 30% in 2001-2004. During the same period, only 5% of African-Americans had sufficient levels of vitamin D.

Vitamin D deficiency has played a prominent role in the medical press of late, and has been linked to a host of illnesses including colon, breast, and prostate cancer, vascular disease, infectious conditions, autoimmune diseases, osteoporosis, type 2 diabetes, obesity, and cognitive decline. Not surprisingly, vitamin D deficiency also plays a role in the clinical presentation and prognosis of myeloma.

In the March 2009 article in the American Journal of Hematology entitled “Impact of vitamin D deficiency on the clinical presentation and prognosis of patients with newly diagnosed multiple myeloma,” Drs. Ng, Kumar, Rajkumar, and Drake of the Mayo Clinic report on 148 newly diagnosed patients whose vitamin D levels were tested within 14 days of diagnosis. They found that ISS (International Staging System) stage increased in parallel with vitamin D deficiency,

suggesting that vitamin D deficiency “may portend poorer outcomes in subjects with MM.” Vitamin D deficiency occurred in 16% of patients with stage I, 20% of patients with stage II, and 37% of patients with stage III myeloma.

Patients who were vitamin D deficient had higher levels of C-reactive protein (CRP), a marker of systemic inflammation, and of creatinine, a marker of kidney dysfunction. High levels of both CRP and creatinine in newly diagnosed myeloma patients have been shown to predict poorer outcome and survival. Contrary to their original hypothesis, however, the researchers did not find that lower levels of vitamin D correlated with skeletal morbidity (increased lytic lesions, long bone fractures, or vertebral compression fractures) at the time of diagnosis. This finding does not, however, preclude the possibility that low levels of vitamin D may play a role in the subsequent development of new skeletal lesions or in the progression of bone disease following diagnosis.

The Mayo authors conclude by asserting the need for larger population-based studies to confirm their research and more fully assess the role of vitamin D deficiency in disease progression, overall survival, and quality of life in patients with newly diagnosed myeloma.

At the Los Angeles IMF Patient & Family Seminar in August 2010, Dr. Robert Kyle stated that all myeloma patients should have their calcium and vitamin D levels checked. Population reference ranges for vitamin D vary widely depending on ethnic background, age, geographic location, and season, so they cannot be given as a blanket statement. Kennel et al at Mayo make the following recommendations:

• Measurement of the total 25(OH)D level is the preferred means of assessing vitamin D stores in the body.

• Adequate vitamin D intake cannot be maintained by diet alone; vitamin D supplementation is safe and inexpensive. Revised dietary reference intakes from the Institute of Medicine are in process.

• Supplementation should be with vitamin D3 in general, but vegans and vegetarians will better absorb vitamin D2.

• If a patient is severely vitamin D deficient, a “loading dose” of 50,000 IU of vitamin D orally once weekly for 2-3 months, or 3 times weekly for 1 month, may be necessary. For mild to moderate deficiency, a shorter treatment interval or lower dose may be effective.

• Regardless of initial vitamin D therapy, a maintenance/prevention dose of 800-2,000 IU daily will be needed to avoid recurrent deficiency.

• Both vitamin D3 and vitamin D2 should be taken with a meal containing fat to ensure maximum absorption.

In addition to the above recommendations, Dr. Brian Durie of the IMF urges follow-up testing of vitamin D levels to ensure adequate supplementation and absorption, particularly at the time of relapse. If the hematologist/oncologist who treats you is in doubt about assessing and maintaining adequate levels of vitamin D, Dr. Durie stresses the need for a referral to an endocrinologist who deals with bone issues to evaluate your situation and make recommendations.

Myeloma patients should be closely monitored throughout the course of their treatment, not only for levels of M-protein and blood counts, but also for levels of serum calcium and serum creatinine, both closely related to vitamin D levels. These tests should be routinely performed as components of the metabolic panel. It is important to note that the United States Department of Agriculture (USDA) table of Dietary Reference Intakes states that “patients on glucocorticoid therapy may require additional vitamin D.” Glucocorticoids, of course, include such medications as dexamethasone, prednisone, and methylprednisolone, common components of myeloma treatment.

Until further research is done on vitamin D levels in myeloma patients, we cannot automatically make the assumption that patients’ outcomes will improve if they achieve a normal level of vitamin D. What we do know, however, is that vitamin D deficiency is linked to more advanced stage at diagnosis (portending poorer outcome), and to a host of other health problems. Maintaining adequate levels of vitamin D is thus an important new aspect of myeloma care.

As always, we urge you to discuss this and all other medical issues thoroughly with your doctor, and to call the IMF Hotline, 800-452-CURE (2873), for help with your questions.