Building better bones

There are several nutrients and activities that can help improve bone health and bone mineral density. In this issue of TreatmentUpdate, we underscore some of these.

**Calcium**

In general, adults need between 1,000 and 1,200 mg per day of calcium. To find out more about getting calcium from your diet, see the following CATIE resources:

CATIE's *Practical Guide to Nutrition* (see the chapter called “Managing the Effects of HIV and Meds on the Body”)

CATIE’s *Positive Side* magazine has these two informative articles:

- Good to the Bone
- Boning up on Bone Health

**Vitamin D**

Many studies have found that HIV-positive people have either a deficiency or less-than-ideal levels of this vitamin in their blood. Factors such as liver and kidney disease can also play a role in depleting vitamin D. Some medicines and herbs used by HIV-positive people can also reduce vitamin D levels, including the following:

- antibiotics – rifampin (rifampicin) and isoniazid, commonly used to treat TB. Vitamin D levels can sometimes fall after as little as two weeks’ exposure to these drugs.
- anti-seizure drugs – phenobarbital, carbamazepine, phenytoin, valproic acid
- anti-cancer drugs – Taxol and related compounds
- antifungal agents – clotrimazole and ketoconazole
- anti-inflammatory drugs – corticosteroids
- anti-HIV drugs – emerging research suggests that the drugs efavirenz (Sustiva, Stocrin and in Atripla) and AZT (Retrovir, zidovudine and in Combivir and Trizivir) may reduce vitamin D levels in some people. In contrast, exposure to darunavir (Prezista) appears to raise vitamin D levels. Researchers continue to study the possible effects of different medications on vitamin D levels, so expect more news about this in the years ahead.
- herbs – St. John’s wort or its extracts (hypericin, hyperforin)

A deficiency of vitamin D causes the body to produce excessive levels of parathyroid hormone (PHT), which may over the long-term cause bone thinning.

Medically guided supplementation of vitamin D is necessary to raise levels in the blood to at least 75 nmol/litre (30 ng/ml). This may mean that some people, particularly those with severe vitamin D deficiency, may require daily doses prescribed by their physician that range between 2,000 and 5,000 IU (international units) of vitamin D3. For further information about vitamin D dosing and safety issues, see *TreatmentUpdate 185*.

**Exercise**

Athletes generally tend to have greater bone mineral density than non-athletes. This suggests that physical exercise is useful for building bone density. Indeed, this is the case in adolescents whose skeletons are still growing. In adults, physical exercise helps to prevent further bone loss and among some HIV-negative people may even increase bone density by 1% or 2%. Before starting an exercise program, speak to your doctor to find out what kind of exercise is right for you.
Note that exercise (aerobic and resistance training), extra calcium and vitamin D are not enough to significantly reverse osteoporosis in HIV-positive people. There are drugs that are specifically designed to strengthen bone density and reverse osteoporosis. The most commonly used drugs to help people with osteoporosis are called bisphosphonates and we discuss these later in this issue.

— Sean R. Hosein

REFERENCES:


Disclaimer

Decisions about particular medical treatments should always be made in consultation with a qualified medical practitioner knowledgeable about HIV- and hepatitis C-related illness and the treatments in question.

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