

# Bone Loss in Teens on DMPA Tied to Vitamin D

VITALS

**Major Finding:** In a substudy of 15 adolescent girls with significant bone loss while using depot medroxyprogesterone acetate, only 1 participant had a "sufficient" serum vitamin D level of greater than 30 ng/mL.

**Data Source:** Subset of a prospective study of 181 adolescent girls on depot medroxyprogesterone acetate.

**Disclosures:** The study was sponsored by Pfizer/Pharmacia, and one of the investigators was employed by that company. Dr. Harel disclosed financial relationships with Merck, Teva/Duramed, Ortho-McNeil, GlaxoSmithKline, Novartis, and Warner Chilcott.

BY ROBERT FINN

FROM THE ANNUAL CLINICAL MEETING OF THE NORTH AMERICAN SOCIETY FOR PEDIATRIC AND ADOLESCENT GYNECOLOGY

LAS VEGAS — Abnormally low levels of vitamin D were seen in a subset of 15 adolescent girls who had substantial losses in bone mineral density while using depot medroxyprogesterone acetate for contraception, according to preliminary results from a prospective study.

The girls were among 181 teens using depot medroxyprogesterone acetate (Depo-Provera, Pfizer) in a

prospective study. Bone mineral density (BMD) losses of 5% or more were seen at the lumbar spine in 25% and at the hip in 50% of the study participants.

The relative estrogen deficiency associated with depot medroxyprogesterone acetate (DMPA) did not correlate with the size of the BMD loss, said Dr. Zeev Harel of Brown University, Providence, R.I.

Moreover, serum estradiol remained above 40-50 pg/mL in almost all participants, Dr. Harel said. This level is considered to be sufficient to conserve bone in elderly women.

He and his colleagues looked at 15 young women who lost at least 5% of BMD from baseline. Their mean age was 17 years, and they were an average of 61 months post menarche. Their BMIs were



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DR. HAREL

within the normal range, and none was obese. Their ethnicity was diverse, and they resided in various U.S. locations.

The investigators noted BMD losses in the majority of the 15 girls after two or three DMPA injections, but some participants did not exhibit BMD losses until after their 10th or 13th injection.

Serum 25-hydroxyvitamin D (25[OH]D) levels were available for 14 of the 15 girls, and all but 1 had low levels of vitamin D. Levels above 30 ng/mL are considered sufficient, levels between 20 and 30 ng/mL are referred to as "insufficient," and levels below 20 ng/mL are referred to as "deficient." Seven of the 14 participants (50%) were vitamin D insufficient, 6 (43%) were vitamin D deficient, and 1 (7%) had normal levels of vitamin D. The mean serum 25(OH)D level among the participants was about 25 ng/mL, in the insufficient range. Mean levels of parathyroid hormone, on the other hand, were in the normal range.

In an interview, Dr. Harel expressed surprise at these results. "I was expecting probably less than 30% [of the participants would have low levels of vitamin D]," he said "We were surprised specifically because when we drew the blood we did it at the end of the summer. Typically we absorb vitamin D from the sun. Also, most of the patients were Caucasian. We know that vitamin D deficiency is common in African Americans and Hispanics. Also, they were not extremely obese. We know we can find vitamin D deficiency in obesity. And we also had representatives from states that were really sunny, California for example."

Dr. Harel said the results were worrisome enough for him to recommend measuring total 25(OH)D in adolescent girls using depot medroxyprogesterone acetate. "And if it's low—deficient or insufficient—treat it accordingly." ■

## ADVERTISEMENT

## AS DIABETES PROGRESSES, OADs ALONE MAY NOT BE ENOUGH

According to the UKPDS, up to 50% of  $\beta$ -cell function may be lost by the time patients are diagnosed with type 2 diabetes, and it may continue to decline, on average, by about 5% annually.<sup>1</sup> A recent article by DeFronzo showed that, in patients with highly impaired glucose tolerance, as much as 80% of  $\beta$ -cell function may be lost by the time of diagnosis.<sup>2</sup> It is this progressive  $\beta$ -cell function loss that is primarily responsible for the development of diabetes and the incremental rise in A1C.<sup>2</sup>

Patients may not know that their pancreas is no longer making enough insulin and that their disease has progressed.<sup>3,4</sup> National data from 2003 to 2004 showed that about 40% of patients with diabetes did not have adequate glycemic control.<sup>5a</sup> And because blood glucose control is important, all available therapeutic options—including insulin—should be considered in the treatment of diabetes. Helping patients get their blood glucose under control may help reduce their risk of developing long-term complications.<sup>6</sup>

Many patients with type 2 diabetes may eventually need insulin to achieve or maintain glycemic control.<sup>3,7</sup> Unfortunately, by the time patients with type 2 diabetes are typically prescribed insulin, they may have had diabetes for 10 to 15 years and may already have complications due to a prolonged period of uncontrolled blood glucose.<sup>8</sup>

Patients may blame themselves for what they perceive as 'failure' to control their glucose levels.<sup>3</sup> And because patients' attitudes toward their disease play an important role in diabetes self-care behaviors, it's likely that this negative mindset may adversely impact diabetes self-management.<sup>9</sup>

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Learn more at [www.RethinkInsulin.com](http://www.RethinkInsulin.com)

**References:** 1. Holman RR. *Diabetes Res Clin Pract.* 1998;40(suppl):S21-S25. 2. DeFronzo. *Diabetes.* 2009;58(4):773-795. 3. Polonsky WH, Jackson RA. *Clin Diabetes.* 2004;22(3):147-150. 4. American Diabetes Association. *Clin Diabetes.* 2007;25(1):39-40. 5. Hoerger TJ, Segel JE, Gregg EW, Saaddine JB. *Diabetes Care.* 2008;31(1):81-86. 6. Stratton IM, Adler AI, Neil HAW, et al. *BMJ.* 2000;321(7258):405-412. 7. Hirsch IB, Bergenstal RM, Parkin CG, Wright E, Buse JB. *Clin Diabetes.* 2005;23(2):78-86. 8. Nathan DM. *N Engl J Med.* 2002;347(17):1342-1349. 9. Egede LE, Ellis C. *Diabetes Technol Ther.* 2008;10(3):213-219. 10. Data on file, sanofi-aventis U.S. LLC. 11. Brunton SA, Davis SN, Renda SM. *Clin Cornerstone.* 2006;8(suppl 2):S19-S26. 12. Nathan DM, Buse JB, Davidson MB, et al. *Diabetes Care.* 2009;32(1):193-203. 13. AACE/ACE Consensus Statement. *Endocr Pract.* 2009;15(6):540-559.

## A POSITIVE "INSULIN TALK" MAY HELP REASSURE PATIENTS

The results of having a positive insulin talk can be impactful: in a survey, about 80% of patients with type 2 diabetes who were taking oral antidiabetic drugs (OADs) said they'd consider taking insulin if their doctor recommended it.<sup>10</sup>

By starting the dialogue now, you can help your patients have a better understanding of insulin and the glucose-lowering role it plays as part of an overall diabetes treatment plan, which may include diet, exercise, and other diabetes medications.<sup>3,11</sup>

For appropriate patients, starting insulin earlier in the disease continuum can help improve glycemic control.<sup>7,11-13</sup> The American Diabetes Association states that insulin is the most effective agent for lowering blood glucose.<sup>12</sup>

So, engage patients in talks early and as needed to help turn their negative mindset of failure into a positive opportunity to manage their blood glucose.

Insulin is indicated to help improve glycemic control in patients with diabetes mellitus.

Treatment plans and glycemic targets should be individualized for each patient.

## IMPORTANT SAFETY INFORMATION ABOUT INSULIN

Possible side effects may include blood glucose levels that are too low, injection site reactions, and allergic reactions, including itching and rash. Other medications and supplements could change the way insulin works. Glucose monitoring is recommended for all patients with diabetes.

<sup>a</sup> Defined as A1C <7%.  
UKPDS=United Kingdom Prospective Diabetes Study.

# INSULIN

IMPROVING BLOOD GLUCOSE CONTROL SHOULDN'T WAIT

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