
   
   Abstract: INTRODUCTION: Depot medroxyprogesterone acetate (DMPA) suppresses pituitary gonadotrophin output, thus, suppressing ovulation. Estrogen production from the ovary is also strongly inhibited, and the resulting estrogen deficiency has a detrimental impact on bone. Depot medroxyprogesterone acetate may be particularly detrimental in young women, as it may impede attainment of peak bone mass, and switching to a different contraceptive is recommended. However, the effect of sequential use of DMPA with other contraceptives in this age group has not been investigated. METHODS: This was a cross-sectional analysis of 218 DMPA users who were 20 years or older (mean, 31 years, +/-8.9 SD) at the time of bone mineral density (BMD) estimation. The majority of women had used one or more contraceptive beside DMPA. The most commonly used alternative contraceptive was the oral combined pill (OCP). It was used by 65% of women (n=143) and for an average duration of 6 years. A logistic regression model was used to estimate the association between potential risk factors and low bone mass. RESULTS: The prevalence of low bone mass at either hip or spine (T< or =1) was 41%. The prevalence of a T score below -2.5 was 5%, and 45% of women had already sustained one fracture. Younger age was associated with higher BMD [odds ratios (ORs), 0.054; 95% confidence interval (CI), 0.007-0.431]. However, this protective effect of age was lost once the interaction between the duration of both DMPA and OCP was introduced into the model (OR for low BMD, 1.42; 95% CI, 1.09-1.8). The use of DMPA first before ever use of OCP was particularly detrimental to BMD (OR, 3.94; 95% CI, 1.08-14.0). On the contrary, body mass index was positively associated with BMD (OR, 0.86; 95% CI, 0.8-0.9). No other demographic or anamnestic variables significantly predicted the presence of low BMD in this group of young women. This group of DMPA users appear to be at a very high risk of both low BMD and fractures, possibly independently of DMPA use. This needs to be considered when writing guidelines for risk assessment. CONCLUSION: The use of DMPA before achievement of peak bone mass may be particularly detrimental to bone, but switching DMPA with the OCP in these women does not seem to confer specific benefit in terms of bone density. This needs to be taken into consideration when a change in contraceptive is considered purely for the sake of bone protection.

   
   Abstract: OBJECTIVE: Depo-Provera is a contraceptive approved by the US Food and Drug Administration (FDA) since 1992 and used worldwide by more than 90 million women. AIM OF STUDY: Despite the fact that progestins are endogenous hormones that are secreted by the body, its excess might lead to detrimental health effects. Whether
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progestins as contraceptives are friends or foes is a questionable matter. In this manuscript, we drive the attention to both usage and side effects Depo-Provera. RESULTS: Depot-medroxyprogesterone acetate (DMPA) is a highly effective, convenient non-daily hormonal contraceptive option that has been available worldwide for many years. The experience with DMPA provides a large body of long-term data regarding the efficacy and safety of this contraceptive method; this long-term experience has established that the use of DMPA does not increase the risk of cardiovascular events, breast cancer, other gynecologic malignancy, or postmenopausal fracture; however, patients are often more concerned about the relatively immediate effects of contraceptives such as potential changes in menstrual cycle, body weight, and mood disturbances. CONCLUSION: Concerns about such issues may lead to reluctance to initiate therapy or premature discontinuation. Counseling and understanding of women's concerns and experiences using Depo-Provera is important and could help health care providers redesign counseling strategies to improve contraceptive continuation and improve patient adherence.


Abstract: PURPOSE: Most studies have shown a negative effect of depot-medroxyprogesterone acetate (DMPA) on the bone mineral density (BMD) of adolescents. There is no information available on the effect of norethisterone enanthate (NET-EN) on BMD in adolescents and the effect of combined oral contraceptives (COCs) on adolescent BMD is inconclusive. The aim of this longitudinal study was to investigate BMD in adolescent (aged 15-19 years) new users of hormonal contraception (DMPA, NET-EN and COCs). METHOD: New users of DMPA (n=115), NET-EN (n=115), COCs (n=116) and 144 nonuser controls were recruited. BMD was measured at the distal radius and midshaft of the ulna using dual X-ray absorptiometry. RESULTS: In total, 275 women were included in this interim analysis and total follow-up time was 553 person-years. There was no significant difference in radius BMD between users of different contraceptive methods at baseline (p=.40). Overall, an increase in radius BMD of 0.00522 per person-year was observed. This result was similar when adjusting for BMI in the random effects regression model (p=.88). The regression model showed that BMI was significantly associated with radius BMD, with each unit increase in BMI corresponding to an increase of 0.0029 g/cm2 in BMD (95% CI 0.0023 to 0.0036, p<.001). Interaction between contraceptive method and follow-up time adjusted for BMI was not significant (p=.07). The increase in BMD for NET-EN users of 0.0013 g/cm2 per person-year (95% CI -0.0017 to 0.0043) was significantly lower than that of nonusers (p=.017). For DMPA and COC users, the increase in BMD was not significantly different compared to the nonusers. This study suggests that NET-EN users had lower increase in BMD over time compared to the other user groups.


Abstract: Most studies show that depot-medroxyprogesterone acetate (DMPA) has a negative effect on bone mass. There are conflicting reports with respect to recovery of bone mass with long-term use of DMPA. No information is available on the effect of norethisterone enanthate (NET-EN) on bone mass, and combined oral contraceptives (COCs) have not been found to be associated with loss of bone mass. The aim of this study
was to investigate bone mineral density (BMD) in older women (40-49 years) in relation to use of DMPA, NET-EN and COCs for at least 12 months preceding recruitment into the study. One-hundred twenty-seven users of DMPA, 102 NET-EN users and 106 COC users were compared to 161 nonuser controls. Bone mineral density was measured at the distal radius and midshaft of the ulna using dual X-ray absorptiometry. There was no significant difference in BMD between the four contraceptive user groups (p=.26) with and without adjustment for age. Although a small decrease in BMD was noted in the age range of 40-49 years, this was not statistically significant (p=.7). The BMD was found to be significantly associated with body mass index (BMI) (p<.0001) at both measurement sites, with an increase of one unit of BMI translating to an increase of 0.0044 g/cm² in radius BMD. Follicle-stimulating hormone (FSH) level >25.8 mIU/mL was associated with a decrease of 0.017 g/cm² in radius BMD relative to women with FSH <25.8 mIU/mL. Significant interaction between FSH and BMI in their effect on BMD was observed (p=.006). This study found no evidence that long-term use of DMPA, NET-EN and COCs affects BMD in this population.

   
   Abstract: OBJECTIVE: Hormonal contraceptives may adversely affect bone mineral density. However, racial differences and the reversibility of these changes are poorly understood. This study measured bone mineral density changes during hormonal contraceptive use and after discontinuation in a triethnic population. METHODS: Bone mineral density was measured every 6 months for up to 3 years in 703 white, African-American, and Hispanic women using oral contraceptives (OCPs), depot medroxyprogesterone acetate (DMPA), or nonhormonal contraceptives, and in 68 DMPA discontinuers for up to 2 additional years. Mixed-model regression analyses were used to estimate the percentage change in bone mineral density for each contraceptive method. RESULTS: Over 3 years, DMPA and OCP users lost more bone mineral density than did nonhormonal contraceptive users (-3.7% and -0.5% compared with +1.9% at lumbar spine, and -5.2% and -1.3% compared with +0.6% at femoral neck, respectively). No differences were observed by race in bone mineral density changes that resulted from DMPA or OCP use. However, DMPA users aged 16-24 years lost more bone mineral density at the spine (4.2% compared with 3.2%, P=.006) and femoral neck (6.0% compared with 4.2%, P=.001) than those aged 25-33 years. After DMPA discontinuation, women who selected nonhormonal contraceptives gained bone mineral density (+4.9% at spine, +3.2% at femoral neck), whereas those who selected OCP recovered spinal (+2.3%) but not femoral neck bone mineral density (-0.7%). CONCLUSION: Use of very-low-dose OCPs may result in a small amount of bone loss. Use of DMPA results in greater bone loss, but this is largely reversible at the spine. Use of very-low-dose OCPs after DMPA discontinuation may slow bone recovery.

   
   Abstract: PURPOSE: To present current data on bone mineral density (BMD) in adolescent women using the long-acting contraceptive depot medroxyprogesterone acetate (DMPA) and also to discuss the importance of developing maximal bone mass during adolescence to offset bone demineralization later in life. DATA SOURCES: Research-based articles in the medical literature, review articles, and recommendations from the American Academy of
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CONCLUSIONS: Osteoporosis is a preventable disease that affects millions of Americans, particularly older women. Factors influencing the attainment and maintenance of peak bone mass during childhood and adolescence affect the future risk of fractures. Although longitudinal studies conducted on adolescent women using DMPA are very limited, findings suggest that adolescents are losing bone density during a time of expected bone accretion. IMPLICATIONS FOR PRACTICE: Clinicians must consider all the risks and benefits when prescribing contraceptives to adolescents. By themselves, the findings related to BMD and DMPA use by adolescents are not sufficient to limit the use of DMPA as a contraceptive method. However, clinicians must take into account the addition of other modifying factors associated with BMD that may contribute to overall bone loss in adolescent females. More prospective data on the long-term use of DMPA by adolescents are needed to determine DMPA's effect on bone loss and to determine if bone loss is transient in adolescents.

   
   Abstract: OBJECTIVE: To compare changes in bone mineral density (BMD) during 48 months between first-time depot medroxyprogesterone acetate (MPA) users, during use and after discontinuation, to controls. DESIGN: Longitudinal study. SETTING: Academic community. PATIENT(S): Women 18-35 years, newly initiating depot MPA (n = 178) and controls (n = 145) not using hormonal contraception. MAIN OUTCOME MEASURE(S): The BMD of the hip and spine, measured at 3-month intervals, by dual energy roentgen absorptiometry. RESULTS: Hip and spine BMD declined during 48 months of depot MPA use by 7.7% +/- 0.11% (mean +/- SE) and 6.4% +/- 0.36%, respectively. The BMD of controls declined <or=1.6% +/- 0.30%. Hip and spine BMD loss slowed to <0.6% after 48 months of depot MPA use. After discontinuation, BMD increased from 0.3% to 2.0% per year depending on length of depot MPA use and bone site. The longest depot MPA users remained 4.7% and 2.9% lower than hip and spine baseline values, respectively, 18 months after discontinuation. CONCLUSION(S): Depot MPA-related BMD loss is substantial but occurs mostly during the first 2 years of DMPA use. Therefore, longer use may not substantially increase the risk of osteoporosis. The prolonged recovery time suggests the need to consider timing of use in relation to menopause or other factors that may impede bone remodeling.

   
   Abstract: OBJECTIVE: To compare longitudinal changes in bone mineral density (BMD) among first-time depot medroxyprogesterone acetate (DMPA) users to women using no hormonal contraception, and evaluate user characteristics associated with that BMD change. DESIGN: Prospective longitudinal study. SETTING: Healthy volunteers in an academic research environment. PATIENT(S): Women, aged 18 to 35, choosing DMPA for contraception (n = 178) and women using no hormonal contraception (n = 145). MAIN OUTCOME MEASURE(S): Hip and spine BMD measured, at three-month intervals for 24 months, by dual energy x-ray absorptiometry. RESULT(S): Mean hip BMD declined 2.8% (SE = 0.034) 12 months following DMPA initiation and 5.8% (SE = 0.096) after 24 months. Mean spine (L1-L3) BMD declined 3.5% (SE = 0.022) and 5.7% (SE = 0.034), respectively, after one and two years of DMPA use. Mean hip and spine BMD of control participants changed less than 0.9% over the same period. Among DMPA users, body mass
index (BMI) change was inversely associated with BMD change at the hip, but not at the spine. Calcium intake, physical activity, and smoking did not influence BMD change in either group. CONCLUSION(S): Hip and spine BMD declined after one DMPA injection and this decline continued with each subsequent injection for 24 months. With the exception of increasing BMI among DMPA users, no user characteristics offered protection against DMPA-related BMD loss.

Abstract: Long-term use of the injectable contraceptive depot medroxyprogesterone acetate (DMPA, Depo-Provera) is associated with a reduction in bone mineral density (BMD), particularly in the lumbar spine. The cause of DMPA-associated bone loss is not known, but the relative estrogen deficiency induced by DMPA use could be responsible. We have undertaken a randomized, double-blind controlled trial of oral estrogen replacement therapy in 38 premenopausal women (mean age 37) with a minimum 2 yr DMPA use who had a below average baseline lumbar spine BMD (T score < or = 0). Nineteen women were allocated to receive conjugated estrogens (0.625 mg/d orally) and 19 to receive a matching placebo. All continued with regular DMPA injections throughout the study. Areal bone density was measured by dual energy x-ray absorptiometry at the lumbar spine, femoral neck, and total body sites every 6 months for 2 yr; the main outcome measure being the change in areal BMD at the lumbar spine. At baseline, the two groups were well matched for demographic, anthropometric, and biochemical variables, and for BMD. Twenty-seven subjects completed at least 18 months in the study, and 26 the full 2 yr, with similar numbers dropping out from each group (mainly for personal reasons). In the estrogen-treated group, mean lumbar spine BMD increased 1%, whereas in the placebo group it fell 2.6%, over 2 yr. The between group differences were 2.0% at 12 months (P = 0.058), 3.2% at 18 months (P < 0.01), and 3.5% at 24 months (P < 0.002). Differences of lesser statistical magnitude were seen at the femoral neck (between group differences at 2 yr: 2.7%, P = 0.24), Ward's triangle (5.0%, P = 0.055), greater trochanter (3.6%, P = 0.056), total body (1.3%, P = 0.046), legs (1.3%, P = 0.065), and trunk (2.0%, P = 0.029). There were no major adverse events. These data support the view that the likely cause of DMPA-associated bone loss is estrogen deficiency and demonstrate that it can be arrested by estrogen replacement therapy.

Abstract: OBJECTIVE: The purpose of this study was to determine the rate of early postmenopausal bone loss in women who had used depot medroxyprogesterone acetate contraception through to menopause. STUDY DESIGN: Bone mineral density at the lumbar spine and femoral neck was assessed prospectively over 3 years in 15 women who reached a natural menopause and who did not undergo hormone replacement therapy and in 16 long-term users of depot medroxyprogesterone acetate who discontinued depot medroxyprogesterone acetate only on reaching menopause. Of the latter, 5 women subsequently underwent hormone replacement therapy. RESULTS: Early menopausal bone loss was rapid in the control group (6% from both sites over 3 years), but the users of depot medroxyprogesterone acetate (who did not take hormone replacement therapy) showed little change in bone mineral density. Between-group differences were statistically significant at years 2 and 3 at both sites (P <.03-.<.002). In the users of depot
medroxyprogesterone acetate who underwent hormone replacement therapy, bone mineral density increased significantly (P <.03) at the lumbar spine and was stable at the femoral neck. CONCLUSION: Women who use depot medroxyprogesterone acetate through to menopause have attenuated rates of bone loss from the lumbar spine and femoral neck, presumably because they have already lost the estrogen-sensitive component of bone.

Abstract: Over 90% of women with anorexia nervosa demonstrate osteopenia, and almost 40% demonstrate osteoporosis at one or more skeletal sites. In addition to estrogen deficiency causing an increase in bone resorption, nutritional effects on the GH-IGF-I axis may contribute to the severe bone loss in this population by decreasing bone formation. We tested the hypothesis that recombinant human IGF-I (rhIGF-I) would increase bone density in women with anorexia nervosa and furthermore assessed the effects of combined rhIGF-I and oral contraceptive administration (OCP) in this population. Sixty osteopenic women with Diagnosis and Statistical Manual of Mental Disorders IV Revised confirmed anorexia nervosa [age (25.2 +/- 0.7 yr, range 18-38 yr), body mass index (17.8 +/- 0.3 kg/m(2)), spinal bone mineral density T score (-2.1 +/- 0.1 SD) were randomized to one of four treatment groups [rhIGF-I (30 microg/kg sc twice daily) and a daily oral contraceptive (Ovcon 35, 35 microg ethinyl estradiol and 0.4 mg norethindrone), rhIGF-I alone (30 microg/kg sc twice daily), oral contraceptive alone, or neither treatment for 9 months. All subjects received calcium 1500 mg/d and a standard multivitamin containing 400 IU of vitamin D. Administration of rhIGF-I was placebo controlled and blinded to subjects. The rhIGF-I was titrated to maintain IGF-I levels within the age-adjusted normal range for each patient and was well tolerated. The effects of rhIGF-I and OCP were analyzed simultaneously among all subjects in a factorial analysis and in an analysis of the four individual treatment groups. Anteroposterior spinal bone density increased significantly in response to rhIGF-I (1.1% +/- 0.5% vs. -0.6% +/- 0.8%, P = 0.05, all rhIGF-I vs. all placebo treated, respectively, by analysis of covariance). In contrast, OCP did not result in increased bone density (0.8% +/- 0.6% vs. -0.4% +/- 0.8%, P = 0.21, all OCP vs. all non-OCP treated, respectively, by analysis of covariance). However, bone density increased to the greatest extent in the combined treatment group (rhIGF-I and OCP), compared with control patients receiving no active therapy (1.8% +/- 0.8% vs. 0.3% +/- 0.6% vs. -0.2% +/- 0.8% vs. -1.0% +/- 1.3%, rhIGF-I and OCP vs. rhIGF-I alone vs. OCP alone vs. no active therapy, P < 0.05 for rhIGF-I and OCP vs. no active therapy). These data demonstrate that osteopenic women with anorexia nervosa treated with rhIGF-I showed more beneficial changes in bone density, compared with patients not treated with rhIGF-I. Antiresorptive therapy with OCP is not sufficient to improve bone density in undernourished patients, but such therapy may augment the effects of rhIGF-I in a combined treatment strategy. Further long-term studies are needed to investigate the effects of rhIGF-I and combined anabolic/antiresorptive strategies on bone in women with anorexia nervosa.

Abstract: This multicenter, double-blind, placebo-controlled, randomized study of 45 patients evaluated the short-term effects of an oral contraceptive [Ortho Tri-Cyclen, 180-
250 micro g of norgestimate (NGM) and 35 microg of ethinyl estradiol (EE) on biochemical markers of bone resorption, formation, and osteoprotegerin in young women (mean age +/- SD, 26.5 +/- 6.3 yr) with hypothalamic amenorrhea and osteopenia. Body fat, endocrine, and cognitive function were evaluated as secondary endpoints. Biomarkers of bone metabolism were measured at baseline and after three cycles of NGM/EE or placebo. There were significant decreases in mean values of N-telopeptide [mean (SD), -13.4 (13.4) vs. 1.2 (23.8) nmol bone collagen equivalents (BCE)/mmol creatinine (Cr); P = 0.001] and deoxypyridinoline [-1.2 (2.9) vs. -0.5 (1.5) nmol deoxypyridinoline/mmol Cr; P = 0.021] as well as significant decreases in bone specific alkaline phosphatase [-5.1 (3.5) vs. 0.4 (3.1) ng/ml; P < 0.001], osteocalcin [-5.9 (3.6) vs. -2.9 (3.7); P = 0.016], and procollagen of type I propeptide [-35.2 (44.6) vs. -0.2 (30.0) ng/ml; P = 0.025], but not osteoprotegerin [0.39 (1.46) vs. -0.2 (0.49) pmol/liter; P = 0.397] in the NGM/EE vs. placebo group. There were no significant differences between groups with respect to changes in cognitive function, mood, body weight, body mass index, body fat, percentage of body fat, and all endocrine levels except FSH, [-3.7 (3.8) vs. -0.6 (2.1) IU/liter; P < 0.001, NGM/EE vs. placebo]. No serious adverse events were reported in either group. These results suggest that NGM/EE decreases bone turnover in osteopenic premenopausal women with hypothalamic amenorrhea. Further studies are needed to determine whether estrogen will increase bone density in this population.

14. Kaunitz AM, Arias R, McClung M. Bone density recovery after depot medroxyprogesterone acetate injectable contraception use. Contraception. 2008;77:67-76. Abstract: BACKGROUND: While depot medroxyprogesterone acetate (DMPA) is a highly effective contraceptive used by millions of women, its use is associated with bone mineral density (BMD) loss, raising concerns about long-term risk of osteoporosis and/or fractures. STUDY DESIGN: We conducted a systematic review of studies published in PubMed from 1996 to 2006, evaluating changes in BMD after discontinuation of DMPA. Ten primary clinical or observational studies were identified addressing this issue. RESULTS: BMD consistently returned toward or to baseline values following DMPA discontinuation in women of all ages. This recovery in BMD was seen as early as 24 weeks after stopping therapy and persisted for as long as women were followed up; BMD in past DMPA users was similar to that in nonusers. CONCLUSIONS: Bone loss occurring with DMPA use is reversible and is not likely to be an important risk factor for low bone density and fractures in older women, although data on fracture risk in DMPA users are lacking.

15. Kaunitz AM, Miller PD, Rice VM, Ross D, McClung MR. Bone mineral density in women aged 25-35 years receiving depot medroxyprogesterone acetate: recovery following discontinuation. Contraception. 2006;74:90-9. Abstract: INTRODUCTION: This 7-year, prospective, matched-cohort, clinical study evaluated the effects of intramuscular depot medroxyprogesterone acetate (DMPA) (150 mg/mL) on bone mineral density (BMD) in women aged 25-35 years. METHODS: Bone mineral density changes in new DMPA-IM users (n=248) were compared with those in women using nonhormonal contraception (n=360) for up to 240 weeks of treatment and 96 weeks of posttreatment follow-up (in subjects receiving >or=1 dose). RESULTS: At week 240 of treatment, mean percentage changes from baseline in DMPA-IM vs. nonhormonal subjects were: -5.16% (n=21) vs. +0.19% (n=65), total hip (p<.001); -5.38% (n=33) vs. +0.43% (n=105), lumbar spine (p<.001). At week 96 posttreatment, these values were: -0.20% (n=25) vs. +0.84% (n=43), total hip (p=.047); -1.19% (n=41) vs. +0.47% (n=66), lumbar spine (p=.017). CONCLUSIONS: These results show BMD declines during
DMPA-IM use; following discontinuation, significant increases in BMD occur through 96 weeks posttreatment.


Abstract: BACKGROUND: Steroidal contraceptive use has been associated with changes in bone mineral density in women. Whether such changes increase the risk of fractures later in life is not clear. However, osteoporosis is a major public health concern. Age-related decline in bone mass increases the risk of fracture, especially of the spine, hip, and wrist. Concern about bone health influences the recommendation and use of these effective contraceptives globally. OBJECTIVES: To evaluate the effect of using hormonal contraceptives before menopause on the risk of fracture in women SEARCH STRATEGY: We searched MEDLINE, POPLINE, CENTRAL, EMBASE, and LILACS for studies of fracture or bone health and hormonal contraceptives. We wrote to investigators to find additional trials. SELECTION CRITERIA: Randomized controlled trials were considered if they examined fractures, bone mineral density (BMD), or bone turnover in women with hormonal contraceptive use prior to menopause. Studies were excluded if hormones were provided for treatment of a specific condition rather than for contraception. Interventions could include comparisons of a hormonal contraceptive with a placebo or with another hormonal contraceptive. Interventions could also include the provision of a supplement versus a placebo. DATA COLLECTION AND ANALYSIS: We assessed for inclusion all titles and abstracts identified through the literature searches with no language limitation. The weighted mean difference (WMD) was computed with 95% confidence interval (CI) using a fixed-effect model. MAIN RESULTS: No trial had fracture as an outcome. Combination contraceptives did not appear to affect bone health. Of progestin-only methods, depot medroxyprogesterone acetate (DMPA) was associated with decreased bone mineral density, while results were inconsistent for implants. The two placebo-controlled trials showed BMD increases for DMPA plus estrogen supplement and decreases for DMPA plus placebo. AUTHORS' CONCLUSIONS: Whether steroidal contraceptives influence fracture risk cannot be determined from existing information. Due to different interventions, no trials could be combined for meta-analysis. Many trials had small numbers of participants and some had large losses to follow up. Health care providers and women should consider the costs and benefits of these effective contraceptives. For example, injectable contraceptives and implants provide effective, long-term birth control yet do not involve a daily regimen. Progestin-only contraceptives are considered appropriate for women who should avoid estrogen due to medical conditions.


Abstract: OBJECTIVE: In November of 2004, the US Food and Drug Administration (FDA) issued a black box warning regarding skeletal health concerns with depot medroxyprogesterone acetate (DMPA) contraception. This FDA labeling change has the potential to impact how this contraceptive is used. Our goal was to assess the impact of the FDA decision on how Florida obstetrician-gynecologists prescribe DMPA. METHODS: A survey was conducted with questions and case scenarios regarding the use of DMPA before and after the black box warning. The survey was sent to all members of the Florida Obstetric and Gynecologic Society. RESULTS: Four hundred twenty-five surveys were mailed and 149 were returned - a 35% return rate. Forty-six percent of physicians surveyed indicated that they place a time limit on DMPA use, and 66% stated that this limit was
based on the FDA black box warning. Sixty-five percent of respondents ordered bone mineral density (BMD) testing solely due to the use of DMPA, with 58% indicating that this decision was based on the black box warning. Eight (5.4%) of the respondents indicated they selectively prescribe bisphosphonates for patients based solely on the use of DMPA, while 33% of respondents state that they use estrogen supplementation. There was a trend towards fewer DMPA injections per week after the black box warning as compared to before; however, this trend was not statistically significant (p<.125). CONCLUSION: Respondents may be writing fewer prescriptions for DMPA, are likely to institute a time limit on said prescription and are likely to order BMD testing, using the black box warning as justification. Continued education is necessary to prevent inappropriate restrictions on DMPA use and the performance and/or prescription of inappropriate tests and medications.


Abstract: BACKGROUND: Women using injectable progestin contraceptives (IPCs) have lower bone mineral density than nonusers. We assessed whether bone loss is completely reversible after cessation of IPC use, whether different IPCs have different effects and whether effects vary by age at first use. STUDY DESIGN: In a cross-sectional study in Cape Town, South Africa, 3487 premenopausal black and mixed race women aged 18-44 years were interviewed for information on contraceptive history and risk factors for decreased bone mineral density, and ultrasound measurements of the left calcaneus were taken. Adjusted means of the ultrasound measures for categories of IPC use were obtained using multivariable linear regression. RESULTS: Current users of IPCs had the lowest ultrasound measures, while the measures of women who had ceased IPC use at least 2-3 years previously were similar to or greater than those of never users of IPCs. The effects of depot medroxyprogesterone acetate and norethisterone enanthate were similar. The calcaneus measures were unrelated to age at which use began after control for confounding factors. CONCLUSION: The data suggest that bone loss during IPC use is reversible and that this loss of bone is completely recovered several years after cessation of use.


Abstract: BACKGROUND: The aim of the study was to compare the bone mineral density (BMD) of postmenopausal women who had used depot-medroxyprogesterone acetate (DMPA) or a copper intrauterine device (IUD) as a comparison group until menopause. STUDY DESIGN: BMD was measured using dual-energy X-ray absorptiometry at the nondominant forearm for up to 3 years following menopause in 135 women aged 43-58 years: 36 former DMPA users and 99 former IUD users. RESULTS: Mean duration of use was (mean+/-SEM) 9.4+/-3.8 and 14.7+/-6.2 years for the DMPA and IUD groups, respectively. One year after menopause, mean distal radius BMD was 0.435 and 0.449 in DMPA and IUD users, respectively, and 0.426 and 0.447 at 2-3 years following menopause. Ultra-distal BMD was 0.369 and 0.384 in DMPA and IUD users, respectively, at 1 year, and 0.340 and 0.383 at 2-3 years. CONCLUSIONS: At 1 and 2-3 years following menopause, no significant differences were observed in the BMD of postmenopausal women aged 43-58 years, who had used DMPA or an IUD until menopause.

Abstract: Although adolescent women are actively acquiring bone, there has been little study of the possible effects of depot medroxyprogesterone acetate (DMPA) injectable contraception use on bone density in adolescents. We conducted a cross-sectional evaluation of the association between DMPA use and bone mineral density in adolescent women, ages 14-18 years. Of 174 study participants, 81 were DMPA users (range, 1-13 injections, median = 3) and 93 were not. Mean bone density at all anatomic sites (hip, spine and whole body) was lower for DMPA users than nonusers, but differences were not statistically significant (e.g., hip, 0.940 vs. 0.970 g/cm², p = 0.10; spine, 0.970 vs. 0.992 g/cm², p = 0.19). Duration of DMPA use showed a trend toward lower spine bone density (p-value for trend = 0.06). This study did not find a strong association between DMPA use and bone density. Further prospective evaluation of bone density changes with DMPA use and after DMPA discontinuation are needed in this age group.


Abstract: OBJECTIVE: To ascertain whether increased bone turnover in depot medroxyprogesterone acetate (DMPA) users after peak bone mass is associated with bone mineral loss. DESIGN: Three-year, observational, longitudinal study. SETTING: General practice and family planning clinics. PATIENT(S): Women over age 34: established DMPA users (n = 23), discontinuers (n = 14), and controls (n = 27). MAIN OUTCOME MEASURE(S): Change in spine and hip bone mineral density (BMD). RESULT(S): Despite increased biochemical markers of bone turnover in DMPA users, there was no decrease in BMD. Bone turnover markers did not correlate with change in BMD. CONCLUSION(S): In established DMPA users, after peak bone mass, a single normal BMD measurement could provide reassurance for long-term use. Measurement of bone turnover does not predict bone loss in DMPA users.


Abstract: INTRODUCTION: Depot medroxyprogesterone acetate (DMPA; Depo-Provera, Tadworth, UK) contraception is used by more than 9 million women worldwide and has a high usage among teenagers in the United Kingdom and the United States. Previous studies have found that DMPA use is associated with a bone density deficit. OBJECTIVES: This case-control matched study aims to eliminate potential confounding factors, identify whether the effect of DMPA on the skeleton is age specific, and determine the effects of DMPA on hormones and bone turnover. DESIGN/PARTICIPANTS: We measured bone density, bone turnover, and hormones in individually matched case-control pairs of women: 50 pairs aged 18-25 yr and 50 pairs aged 35-45 yr. RESULTS: DMPA use was associated with a 5% bone density deficit at the lumbar spine and hip in women who started DMPA use before age 20 yr but not after age 34 yr. Bone turnover was increased in DMPA users in both age groups. DMPA users had lower estradiol and higher IGF-I than controls, and younger DMPA users had higher dehydroepiandrosterone sulfate than controls. In a multiple regression model, estradiol and IGF-I were associated with bone turnover, but addition of DMPA to the model made the association with estradiol nonsignificant.
CONCLUSIONS: DMPA use is associated with a bone density deficit at the spine and hip when used before peak bone mass. DMPA acts on the skeleton mainly through estrogen deficiency.


Abstract: SUMMARY: This study assessed associations between habitual caffeine intake and bone mass among young women. Analyses of the entire study population revealed no significant associations, while analyses restricted to women using depot medroxyprogesterone acetate (DMPA) showed modest inverse associations between caffeine intake and bone mineral content (BMC). INTRODUCTION: Some previous investigations among postmenopausal women suggest an inverse relationship between caffeine intake and bone mass, yet studies of this association among young women are few. METHODS: The association between habitual caffeine intake and bone mass was evaluated prospectively in a population-based cohort of 625 females, aged 14 to 40 years, adjusting for relevant biological and lifestyle factors. Caffeinated beverage intake was self-reported, and bone mineral content (BMC) and bone mineral density (BMD) were measured at baseline and every 6 months throughout a 24-month follow-up period using dual-energy x-ray absorptiometry. RESULTS: Cross-sectional analyses revealed no significant differences in mean BMC or BMD at baseline. Mean percentage and absolute changes in BMC and BMD were not associated with caffeine use. Repeated measures analyses similarly showed no significant association between caffeine intake at baseline and mean BMC or BMD measured during follow-up. However, among women using depot medroxyprogesterone acetate (DMPA), modest inverse associations between caffeine and BMC (but not BMD) were detected. CONCLUSIONS: Our data suggest that heavy habitual consumption of caffeinated beverages does not adversely impact bone mass among young women in general. Greater caffeine intake may be associated with lower BMC among DMPA users.