Determining Risk Between Depo-Provera Use and Increased Uterine Bleeding in Obese and Overweight Women

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Background: **Millions of women worldwide use depot medroxyprogesterone acetate (DMPA) for contraception. Common side effects include bleeding irregularities and weight gain. This study examines whether a relation exists between DMPA use in obese and overweight women and increased uterine bleeding.**

Methods: **Medical record data were gathered retrospectively from three family medicine clinics, documenting weight and height, DMPA therapy, and increased or excessive bleeding. Body mass index was calculated for each individual and used as the identifier for group assignment. Comorbid conditions, such as concomitant medication use, history of pregnancy while on DMPA, age, socioeconomic status (determined by insurance source), marital status, and number of children (live births only), were also documented.**

Results: **An inverse association was found, indicating that excess weight or obesity was associated with a decreased risk of (risk ratio 0.47) or possible protective factor against increased or excessive bleeding while the patient was on DMPA therapy. There was no significant outcome when consideration was made for age, marital status, socioeconomic status, medical conditions, or number of children.**

Conclusions: **The finding that excessive weight or obesity was associated with a lower risk of increased or excessive bleeding can be advantageous when counseling this patient population on contraception options, especially with the knowledge that decreased side effects increase the propensity toward compliance and satisfaction. (J Am Board Fam Pract 2002;15:7–10.)**

Depot medroxyprogesterone (DMPA), approved by the Federal Drug Administration as an injectable contraceptive in 1992, is used by millions of women worldwide.[1,2] Inhibiting ovulation by suppressing the preovulatory surge of gonadotropins, this long-term progestin-only contraceptive is highly effective when administered every 14 weeks.[3] Many of the patients who came to the family medicine clinics included in this study reported suboptimal or unsuccessful results with other contraceptive methods but responded positively to DMPA therapy. The side effect most often reported was menstrual flow irregularities. Because approximately 58% of these female patients within reproductive years were obese or overweight, a question was raised regarding what relation excess weight or obesity might have in menstrual irregularities, specifically with increased or excessive bleeding, while the patient is on DMPA. Although irregularities in amount and frequency of menstrual flow and weight gain are well documented side effects of DMPA therapy,[1–6] no current literature was found addressing the frequency of menstrual irregularities in obese or overweight women while on DMPA. The purpose of this study, therefore, was to determine whether a relation exists between increased or excessive uterine bleeding and DMPA use in obese or overweight women.

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Methods

Between 1996 and 1998, women who electively received DMPA for contraception were targeted at three family medicine clinics in Memphis, Tenn. Those selected had received 9 months or more (three or more consecutive injections) of DMPA therapy. A total of 265 women met the criteria; 260 had charts containing adequate information to complete the study.

Exclusion Criteria

Exclusion criteria included (1) undiagnosed vaginal bleeding at the time DMPA therapy was started, (2) history of pregnancy while taking DMPA, (3) noncompliance with DMPA injection regimen (interruption in use), (4) receiving DMPA for something other than contraceptive therapy, and (5) incomplete charts. Women undergoing concomitant therapy with aminoglutethimide were also excluded, because such therapy decreases the efficacy of DMPA.

Study Design

Using a retrospective cohort design, medical record data were gathered from three family medicine clinics. Documentation of weight and height, DMPA therapy, and increased or excessive bleeding were noted. Body mass index (BMI) was calculated for each individual and used as the identifier for assignment into one of two groups. The first group was comprised of 135 women whose weight and height were proportional. The second group was made up of 125 women: 71 were defined as obese, and 54 were defined as overweight. Women who reported experiencing increased or excessive bleeding were classified according to information documented in individual medical charts by their physicians.

Increased bleeding was defined as documentation of the phrases "increased flow," "heavier menses," "increased duration of menses," and "increased spotting" while on DMPA. Excessive bleeding was defined as documentation of the phrases "excessive flow," "excessive bleeding," "continuous bleeding," and "continuous flow" during DMPA therapy. Beyond providing standardized definitions, this format served to minimize the potential for reviewer bias in interpreting data to be gathered.

To account for potential confounding variables, additional pertinent medical record data were collected, including comorbid medical conditions, concomitant medication use, history of pregnancy while on DMPA, age, socioeconomic status (determined by insurance source), marital status, and number of children (live births only; abortions and miscarriages were not reviewed).

Standardized definitions of weight and height for obesity, overweight, and weight and height proportional were used from the First Federal Obesity Clinical Guidelines.[7] BMI, an expression of weight and height relation, is calculated as weight in kilograms divided by height in meters squared: weight(kg)/height(m^2). Obese is defined as having a BMI of 30 or greater, overweight as having a BMI between 25 and 29.9, and weight and height proportional as having a BMI of less than 25.[8] Weight at the time DMPA was initiated was compared with the most recent documented weight for calculation adjustment, if necessary.

To validate DMPA therapy, including duration and consistency of use, two documentation methods were reviewed and used as a reference in cross-checking information. The number of injections and dates of service were obtained from both billing data and medical records. Duration of therapy was calculated by multiplying the number of injections by 3. Consistency of use was determined by documenting dates of service. Any two consecutive injections spanning beyond 98 days were considered an interruption in use.

Table 1. Study Population Demographics.

Demographics	No. (%)
Age, years	
<18	17 (6.5)
22–30	122 (46.9)
>40	17 (6.5)
Insurance	
TennCare	244 (93.8)
Private or self-pay	16 (6.2)
Marital status	
Single	186 (71.5)
Divorced or widowed	0 (0)
Married	74 (28.5)
Number of children	
None	49 (18.9)
1	113 (43.6)
5–7	4 (1.5)

Results

Distribution of population demographic data are displayed in Table 1. Ages ranged from younger than 18 years to older than 40 years, with the largest percentage in the 22- to 30-year age bracket (122 women, 46.9%). Insurance coverage as an indicator of socioeconomic status was defined as private, self-pay, and TennCare (Tennessee Medicaid), with the greatest number of patients covered by TennCare (244 women, 93.8%). Marital status was defined as single, married, divorced, or wid-

Table 2. Study Population Body Mass Index and Distribution of Increased or Excessive Bleeding.

Characteristics	Total Population (No. %)	Total with Excessive Bleeding No. (%)	Total Without Excessive Bleeding No. (%)
Obese (BMI ≥30)	71 (27.3)	4 (5.6)	67 (94.4)
Overweight (BMI >25 but <30)	54 (20.8)	2 (3.7)	52 (96.3)
Height and weight proportional (BMI <25)	135 (51.9)	13 (9.6)	122 (90.4)

BMI – body mass index.

owed, with the greatest number of patients being single (186 women, 71.5%). Total number of children ranged from 0 to 7, with the largest group having 1 child (113 women, 43.6%).

The total number of injections per patient ranged from 3 (102 women, 39.2%) to 10 (1 woman, 0.4%). The total number of continuous DMPA therapy regimens ranged from less than 12 months (31 women, 11.9%) to longer than 48 months (11 women, 4.2%), with the greatest number of women falling into the 12- to 23-month range (151 women, 58.1%).

Instances of increased or excessive bleeding were counted and tallied for each group (Table 2). Increased or excessive bleeding occurred in 4.8% of the obese and overweight group and in 9.6% of the group who were determined to be height-weight proportional. Findings disclosed an inverse association, indicating that excess weight or obesity was associated with a decreased risk of (risk ratio 0.47) or possible protective factor against increased or excessive bleeding while on DMPA therapy. Using chi square testing, further analysis comparing the two groups found no significant difference in outcome ($P < .40$) when consideration was made for age, marital status, socioeconomic status, medical conditions, or number of children.

Discussion

The National Center for Health Statistics reports that obesity is an epidemic, and 49% of women in the United States are obese or overweight.[9] Although this constitutes a sizable number of women with specific health needs and risks, providers should consider that these women have additional needs beyond counseling regarding nutrition, exercise, and available weight-loss drugs.[10]

The purpose of this study was to determine whether there is a relation between increased or excessive bleeding and DMPA use in obese and overweight women. Results indicate that an inverse association existed with these women. Excessive weight or obesity was associated with a lower risk of increased or excessive bleeding compared with height-weight proportional counterparts. These findings can be advantageous when counseling this patient population on contraception options, especially with the knowledge that decreased side effects increase the propensity toward compliance and satisfaction.

This study showed (without weight factor identification) an overall instance of increased or excessive bleeding to be 7.3%, which falls well within the range of two recent studies. In a clinical study involving 3,905 patients conducted by Pharmacia & Upjohn, the most common reason for discontinuing DMPA for contraception was uterine bleeding. This study found that 8.4% of the participants discontinued DMPA for this reason.[11] In another study involving 140 patients, 7.2% of the 140 patients discontinued DMPA for contraception because of excessive bleeding.[12]

In regard to limitations, the study population size was small, and participants might have possessed unidentified characteristics that would introduce significant variables. Although every attempt was made to use all pertinent information, data were limited to patient reporting, billing information, and chart documentation. Smoking status, race, and herbal supplement use were not addressed but might have had some level of significance. It has been reported that ginkgo biloba and ginseng might potentiate bleeding, and ginseng and saw palmetto might interact with hormonal contraceptives, decreasing their effectiveness. As the use of herbal supplements becomes more common, their interaction with medications and need for inclusion in medical record documentation become important considerations. Additionally, patient reporting

of symptoms can be both enhanced and discouraged by health care provider bias.

It is hoped that, in addition to increasing the amount of literature available on the use of DMPA, this information will warrant further studies to improve user satisfaction and long-term therapeutic compliance. This study was also done in recognition of women of size, who constitute a significant portion of the US population but who are frequently overlooked in health promotion and preventive care beyond weight reduction and control.

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