

What are the relative risks and benefits of progestin-only contraceptives?

Mary W. Roederer, PharmD

Department of Family Medicine, University of North Carolina at Chapel Hill

Jean C. Blackwell, MLS

Health Sciences Library, University of North Carolina at Chapel Hill

EVIDENCE-BASED ANSWER

Little evidence describes the risks and benefits of progestin-only contraceptives therapy options.

Risks

No good-quality evidence exists to determine the risk of cancer associated with progestin-only contraceptives. Data are insufficient to discern their effect on milk quality and quantity during lactation, though no effect on infant growth or weight was identified (strength of recommendation [SOR]: **A**, based on systematic Cochrane review).¹

No increase in blood pressure occurred with oral progestin-only contraceptives or depot medroxyprogesterone acetate (DMPA) (SOR: **B**, cohort studies).² A decrease in bone mineral density was associated with current use of DMPA

in studies lasting 2 years or less, yet the cessation of use may attenuate the effect (SOR: **B**, mostly case-control).³ Oral and injectable progestin-only contraceptives demonstrated no significant increase in venous thromboembolism, stroke, acute myocardial infarction, or combined cardiovascular disease endpoint (SOR: **B**, case-control study).⁴ Termination rates for nonmenstrual effects with progesterone implants were less than 3% (SOR: **B**, cohort studies).⁵

Benefits

Progestin-only contraceptives are an effective form of birth control. For the treatment of premenstrual syndrome or dysfunctional uterine bleeding, inadequate evidence exists to support using progestin-only options (SOR: **A**, RCTs).^{6,7}

CLINICAL COMMENTARY

Patient-centered, not evidence-based, reasons contribute to shifts in contraception patterns

Nonlactating women in my practice are choosing progestin-only contraceptives less often than previously, when DMPA was my second-most-common contraceptive prescription. Patient-centered, not evidence-based, reasons contribute to this shift in prescribing patterns.

Many women who chose injectable progestin-only contraceptives because of difficulty remembering to take oral contraceptives have changed to patch-delivered or intravaginal

estrogen-progestins due to concern over potential weight gain and increased bone loss with progestin-only contraceptives. Intrauterine devices have experienced a surge in popularity with the addition of slow-release progesterone, and condoms remain popular because they reduce disease transmission. When women receive evidence-based risk/benefit contraceptive counseling, they then have the knowledge to choose the contraceptive that best fits their lifestyle.

Paul Crawford, MD, Headquarters AAC Family Medicine Residency, Eglin Air Force Base, Eglin, Fla

■ Evidence summary

The risks and benefits associated with progestin-only contraceptives are not completely studied for all routes of administration. There is insufficient evidence regarding their risks to point to a definitive harm with their administration (**TABLE**).

The risk of pregnancy with progestin-only contraceptives ranges from 0.0% to 13.2% based on the method that is selected.⁸ Evidence is lacking to support use of progestin-only contraceptives for premenstrual syndrome or dysfunctional uterine bleeding.^{6,7}

TABLE

Risks and benefits of progestin-only contraceptives

| RISK | TYPE | EVIDENCE |
|--|------------------------------------|--|
| VTE, stroke, acute MI, or combined CVD endpoint ⁴ | Oral injectable | No significant association with increased incidence of VTE, stroke, acute MI, or the combined CVD endpoint |
| Increased blood pressure ² | Oral DMPA | No significant association with increased blood pressure for up to 2–3 years of use |
| Nonmenstrual adverse events ⁵ <ul style="list-style-type: none"> • Headache • Lower abdominal pain • Weight gain • Acne | Progesterone implants | <ul style="list-style-type: none"> • Specific information for each adverse event unavailable • Overall termination rate for nonmenstrual adverse events less than 3% |
| Effect on lactation ¹ | All progestin-only contraceptives* | <ul style="list-style-type: none"> • Insufficient evidence to establish an effect on milk quality or quantity • No documented effect on infant growth or weight |
| Decreased BMD ³ | DMPA | <ul style="list-style-type: none"> • Decreased bone mineral density within 1 standard deviation of mean • Duration of effect inconclusive as cessation of use may attenuate effect • No information on risk of fracture |
| Pregnancy ⁸ | Oral, DMPA, progesterone implants | Based on perfect use and typical use evaluations: <ul style="list-style-type: none"> • Oral: 0.0% to 13.2% • DMPA: 0.0% to 3.2% • Implants: 0.0% to 2.3% |
| BENEFIT | TYPE | EVIDENCE |
| Treatment of PMS ⁶ | Suppositories, pessaries, oral | No evidence of improvement in PMS symptoms |
| Dysfunctional uterine bleeding with anovulation ⁷ | Oral | No evidence to support the use of progestones or progestogens in dysfunctional uterine bleeding |

*Only trials with oral dosages met criteria.
 DMPA, depot medroxyprogesterone acetate; VTE, venous thromboembolism; MI, myocardial infarction; CVD, cardiovascular disease; PMS, premenstrual syndrome

Recommendations from others

The World Health Organization (WHO) highlights the need to avoid progestin-only contraceptives for women younger than 18 or older than 45 years, secondary to concerns of decreased bone mass. Immediately postpartum, women may initiate progestin-only contraceptives if they are not breastfeeding; if breastfeeding, women should wait until at least 6 months postpartum.

Hypertensive women should avoid progestin-only contraceptives; women at risk for hypertension—particularly DMPA

users—are encouraged to measure blood pressure before and after use. The WHO document points out the increased possibility for abnormal uterine bleeding with progestin-only contraceptives use.⁹

American College of Physician’s *PIER: Physicians’ Information and Education Resource* describes using progestin-only contraceptives in hypercoagulable states and severe hyperlipidemia and avoiding use in osteoporosis, osteopenia, and chronic glucocorticoid use due to a decrease in bone mineral density.¹⁰

Evidence-based medicine ratings

THE JOURNAL OF FAMILY PRACTICE uses a simplified rating system called the Strength of Recommendation Taxonomy (SORT). More detailed information can be found in the February 2003 issue, "Simplifying the language of patient care," pages 111–120.

Strength of Recommendation (SOR) ratings are given for key recommendations for readers. SORs should be based on the highest-quality evidence available.

- A Recommendation based on consistent and good-quality patient-oriented evidence.
- B Recommendation based on inconsistent or limited-quality patient-oriented evidence.
- C Recommendation based on consensus, usual practice, opinion, disease-oriented evidence, or case series for studies of diagnosis, treatment, prevention, or screening

Levels of evidence determine whether a study measuring patient-oriented outcomes is of good or limited quality, and whether the results are consistent or inconsistent between studies.

STUDY QUALITY

1—Good-quality, patient-oriented evidence (eg, validated clinical decision rules, systematic reviews and meta-analyses of randomized controlled trials [RCTs] with consistent results, high-quality RCTs, or diagnostic cohort studies)

2—Lower-quality patient-oriented evidence (eg, unvalidated clinical decision rules, lower-quality clinical trials, retrospective cohort studies, case control studies, case series)

3—Other evidence (eg, consensus guidelines, usual practice, opinion, case series for studies of diagnosis, treatment, prevention, or screening)

Consistency across studies

Consistent—Most studies found similar or at least coherent conclusions (coherence means that differences are explainable); *or* If high-quality and up-to-date systematic reviews or meta-analyses exist, they support the recommendation

Inconsistent—Considerable variation among study findings and lack of coherence; *or* If high-quality and up-to-date systematic reviews or meta-analyses exist, they do not find consistent evidence in favor of the recommendation

CLINICAL INQUIRIES

The American College of Obstetricians and Gynecologists (ACOG) specifically endorses the preferential use of progestin-only contraceptives by lactating women and women at an increased risk of venous thromboembolism based on good evidence. For women with systemic lupus erythematosus, ACOG recommends use of progestin-only contraceptives over combined oral contraceptive, based on fair evidence. By consensus, ACOG recognizes benefits of DMPA for women with sickle-cell disease and women with coronary artery disease, congestive heart failure, or cerebrovascular disease. In general, ACOG recommends progestin-only contraceptives over combined oral contraceptives for patients with the following conditions: migraine headaches, cigarette smoker of age greater than 35, history of venous thromboembolism, coronary artery disease, congestive heart failure, cerebrovascular disease, postpartum <2 weeks, hypertension with vascular disease or age greater than 35, diabetes with vascular disease or age greater than 35, systemic lupus erythematosus with vascular disease, nephritis, or antiphospholipid antibodies, or hypertriglyceridemia.¹¹

REFERENCES

1. Truitt ST, Fraser AB, Grimes DA, Gallo MF, Schulz KF. Combined hormonal versus nonhormonal versus progestin-only contraception in lactation. *Cochrane Database Syst Rev* 2003; (2):CD003988.
2. Hussain SF. Progestogen-only pills and high blood pressure: is there an association? A literature review. *Contraception* 2004; 69:89–97.
3. Banks E, Berrington A, Casabonne D. Overview of the relationship between use of progestogen-only contraceptives and bone mineral density. *BJOG* 2001; 108:1214–1221.
4. World Health Organization Collaborative Study of Cardiovascular Disease and Steroid Hormone Contraception. Cardiovascular disease and use of oral and injectable progestogen-only contraceptives and combined injectable contraceptives. *Contraception* 1998; 57:315–324.
5. Brache V, Faundes A, Alvarez F, Cochon L. Nonmenstrual adverse events during use of implantable contraceptives for women: data from clinical trials. *Contraception* 2002; 65:63–74.
6. Wyatt K, Dimmock P, Jones P, Obhrai M, O'Brien S. Efficacy of progesterone and progestogens in management of premenstrual syndrome: systematic review. *BMJ* 2001; 323:776–780.
7. Hickey M, Higham J, Fraser IS. Progestogens versus oestrogens and progestogens for irregular uterine bleeding associated with anovulation. *Cochrane Database Syst Rev* 2000; (2):CD001895.
8. Trussell J. Contraceptive efficacy. In: Hatcher RA et al, eds. *Contraceptive Technology*. 18th rev ed. New York, NY: Ardent Media; 2004:773–845.
9. World Health Organization. *Improving Access to Quality Care in Family Planning: Medical Eligibility Criteria for Contraceptive Use*. 3rd ed. Geneva: World Health Organization; 2004.
10. American College of Physicians. Contraception recommendations for selected conditions or medications. PIER: Physicians' Information and Education Resource [online]. Philadelphia: American College of Physicians, 2005. Available at: online.statref.com. Accessed on August 12, 2005.
11. ACOG Practice Bulletin. The use of hormonal contraception in women with coexisting medical conditions. *Int J Gynaecol Obstet* 2001; 75:93–106.