



Editorial

Contraception for Women with Polycystic Ovary Syndrome: Dealing with a Complex Condition

Poli Mara Spritzer^{1,2}

¹Gynecological Endocrinology Unit, Division of Endocrinology, Hospital de Clínicas de Porto Alegre, Porto Alegre, RS, Brazil

²Department of Physiology, Universidade Federal do Rio Grande do Sul, Porto Alegre, RS, Brazil

Rev Bras Ginecol Obstet 2022;44(4):325–326.

Polycystic ovary syndrome (PCOS) is a complex condition, affecting around 9 to 13% of women at reproductive age and characterized by menstrual irregularity, ovulatory dysfunction, hyperandrogenism and polycystic ovarian morphology. Women with PCOS also present higher prevalence of obesity, cardiometabolic disturbances, such as dyslipidemia and hypertension and greater risk of impaired glucose tolerance and diabetes. Current evidence suggests that complex interactions between genetic, epigenetic, environmental, and behavioral factors contribute to the onset and to the heterogeneous clinical presentation of PCOS. In this context, and in the absence of pregnancy plans, it is essential to determine the ideal contraceptive method to offer according to the clinical, hormonal and metabolic profile of each woman.¹

Menstrual disturbances are a very common clinical feature in women with PCOS. Effective treatment will protect the endometrium from estrogen stimulation and will significantly reduce the risk of endometrial hyperplasia and cancer. Also common are signs of clinical hyperandrogenism, namely hirsutism, acne, and hair loss, which should be considered when choosing a contraceptive method. This choice may, therefore, have advantages that are not related to contraception. As part of a holistic approach to women with PCOS, even if lifestyle changes (and weight loss for overweight and obese patients) can improve or prevent metabolic disorders, their cardiometabolic profile should also be taken into account when choosing a contraceptive method.

Combined oral contraceptive (COC) is the first-line pharmacological treatment for the management of menstrual irregularities in PCOS, offering, in addition to contraception, protection of the endometrium. In addition, COC is also recommended for treating clinical hyperandrogenism, combined or not with cosmetic treatments and/or antiandrogen drugs. COC acts by suppressing LH secretion, which induces a reduction in the ovarian production of androgens. These

contraceptives also increase hepatic secretion of SHBG, thereby reducing circulating free testosterone levels.²

Current data do not support recommending specific estrogen-progestin combinations or types and doses of progestins that may be more effective than others in PCOS.^{3,4} The effectiveness of COC depends, among other factors, on the duration of use, the severity of the clinical presentation, the adherence of patients to treatment. In this sense, COC containing a progestin with low affinity for the androgen receptor, such as those of the third generation (gestodene, desogestrel, norgestimate), and or a progestin with anti-androgen action (cyproterone acetate and drospirenone), could be preferred in the presence of signs of hyperandrogenism. However, the differences in efficacy between these molecules have not been clearly established.³ In contrast, the lowest effective estrogen doses, such as 20–30 micrograms of ethinyl estradiol (EE) (or estradiol equivalent), should be considered, balancing efficacy and metabolic risk profile.³ While the efficacy of different COC may be comparable, the risk of venous thromboembolic events should be considered before their prescription. Current data indicate that COC containing a second-generation progestin (levonorgestrel) or norgestimate have the lowest relative risk compared with other progestins.^{5,6}

Among women with PCOS, using COC seems to have no deleterious effect on carbohydrate metabolism,⁷ but long-term, good-quality longitudinal studies are needed to confirm these data. For some overweight women with PCOS and at-risk metabolic profile or risk factors for diabetes, the combination of the COC with metformin may be considered. Lifestyle changes, including a healthy diet and regular physical activity, are then essential.^{3,8,9}

Although the benefits of COC in the long-term treatment of PCOS overall outweigh the risks of their use, the World Health Organization (WHO)¹⁰ eligibility criteria for prescribing PCOS should be met. Screening for contraindications to COC is

Address for correspondence
Poli Mara Spritzer, MD, PhD,
Gynecological Endocrinology
Unit, Division of Endocrinology,
Hospital de Clínicas de Porto
Alegre, Porto Alegre, RS, Brazil
(e-mail: spritzer@ufrgs.br).

DOI <https://doi.org/10.1055/s-0042-1748036>.
ISSN 0100-7203.

© 2022. Federação Brasileira de Ginecologia e Obstetrícia. All rights reserved.

This is an open access article published by Thieme under the terms of the Creative Commons Attribution License, permitting unrestricted use, distribution, and reproduction so long as the original work is properly cited. (<https://creativecommons.org/licenses/by/4.0/>)
Thieme Revinter Publicações Ltda., Rua do Matoso 170, Rio de Janeiro, RJ, CEP 20270-135, Brazil

therefore imperative before any prescription in women with PCOS.¹⁰ Indeed, in case of contraindication or refusal of COC, oral progestin-only contraceptives and long-acting, non-oral contraceptives (LARC) are good alternatives for providing endometrial protection and guarantee contraception to women with PCOS. Progestin-containing LARC includes the intrauterine device locally delivering low doses of levonorgestrel, and the subcutaneous implant, which delivers etonogestrel. Injectable medroxyprogesterone acetate is also available, but the risks outweigh the benefits of this molecule in women with PCOS who have multiple cardiovascular risk factors, such as but not limited to, high blood pressure, diabetes with chronic complications.¹⁰ After an initial period of use, progestin-only contraceptives can cause varying degrees of endometrial atrophy and amenorrhea. But, they can also be responsible for spotting or breakthrough bleeding.¹¹ The choice between progestin-only contraceptives or LARC needs to be individualized, as is the case for women without PCOS, respecting the patient's preference.

Although endometrial protection is assured with oral progestin-only contraceptives and LARC, this type of contraception has no effect on hyperandrogenism in women with PCOS, with the possible exception of a recently released oral drospirenone-only oral contraceptive.¹² If the choice is for using a LARC, and in the presence of hirsutism, it is possible to consider associating an anti-androgen with the contraceptive treatment. In women with PCOS who are overweight and have cardiometabolic risk factors, including insulin resistance or dysglycemia, metformin may be also added to the contraceptive.^{3,8}

Regarding the copper intrauterine device, it is an effective contraceptive option and suitable for women who cannot or do not want hormonal contraception. In turn, this contraception has no effect on hyperandrogenism. Individualization of treatment is therefore recommended, combining, if necessary, an anti-androgen and/or metformin.³

Therefore, considering the multifaceted pattern of this clinical condition, the choice of contraception in women with PCOS should be tailored to the individual needs of each patient, which may additionally include lifestyle changes and specific treatment of comorbidities such as anti-obesity, anti-hypertensive, anti-diabetic or anti-lipid drugs, when applicable.

Conflict of Interest

None declared.

References

- 1 Spritzer PM. Contraception dans le contexte du syndrome des ovaires polykystiques. *Med Sci (Paris)*. 2022;38(02):177–181. Doi: 10.1051/medsci/2022002
- 2 Zimmerman Y, Eijkemans MJ, Coelingh Bennink HJ, Blankenstein MA, Fauser BC. The effect of combined oral contraception on testosterone levels in healthy women: a systematic review and meta-analysis. *Hum Reprod Update*. 2014;20(01):76–105. Doi: 10.1093/humupd/dmt038
- 3 Teede HJ, Misso ML, Costello MF, et al; International PCOS Network. Recommendations from the international evidence-based guideline for the assessment and management of polycystic ovary syndrome. *Fertil Steril*. 2018;110(03):364–379. Doi: 10.1016/j.fertnstert.2018.05.004
- 4 Barrionuevo P, Nabhan M, Altayar O, et al. Treatment options for hirsutism: a systematic review and network meta-analysis. *J Clin Endocrinol Metab*. 2018;103(04):1258–1264. Doi: 10.1210/je.2017-02052
- 5 Dragoman MV, Tepper NK, Fu R, Curtis KM, Chou R, Gaffield ME. A systematic review and meta-analysis of venous thrombosis risk among users of combined oral contraception. *Int J Gynaecol Obstet*. 2018;141(03):287–294. Doi: 10.1002/ijgo.12455
- 6 World Health Organization. Sexual and reproductive health: combined hormonal oral contraception and risk of venous thromboembolism (VTE) [Internet]. 2018 [cited 2020 Jan 19]. Available from: http://www.who.int/reproductivehealth/topics/family_planning/coc/en/
- 7 Luque-Ramírez M, Nattero-Chávez L, Ortiz Flores AE, Escobar-Morreale HF. Combined oral contraceptives and/or antiandrogens versus insulin sensitizers for polycystic ovary syndrome: a systematic review and meta-analysis. *Hum Reprod Update*. 2018;24(02):225–241. Doi: 10.1093/humupd/dmx039
- 8 Spritzer PM, Motta AB, Sir-Petermann T, Diamanti-Kandarakis E. Novel strategies in the management of polycystic ovary syndrome. *Minerva Endocrinol*. 2015;40(03):195–212
- 9 Mario FM, Graff SK, Spritzer PM. Habitual physical activity is associated with improved anthropometric and androgenic profile in PCOS: a cross-sectional study. *J Endocrinol Invest*. 2017;40(04):377–384. Doi: 10.1007/s40618-016-0570-1
- 10 World Health Organization. Medical eligibility criteria for contraceptive use [Internet]. 5th ed. Geneva: WHO; 2015 [cited 2021 Jul. 21]. Available from: http://www.who.int/reproductivehealth/publications/family_planning/MEC-5/en/
- 11 Grimes DA, Lopez LM, O'Brien PA, Raymond EG. Progestin-only pills for contraception. *Cochrane Database Syst Rev*. 2013;(11):CD007541. Doi: 10.1002/14651858.CD007541.pub3
- 12 Chiara Del Savio M, De Fata R, Facchinetti F, Grandi G. Drospirenone 4 mg-only pill (DOP) in 24+4 regimen: a new option for oral contraception. *Expert Rev Clin Pharmacol*. 2020;13(07):685–694. Doi: 10.1080/17512433.2020.1783247