

Insulin Sensitizers for Treatment of Menstrual Irregularities Associated with PCOS

DIMMY SOKHAL, PharmD, *Hayat Pharmacy, Milwaukee, Wisconsin*

CONNIE KRAUS, PharmD, *University of Wisconsin School of Pharmacy, Department of Family Medicine and Community Health, Madison, Wisconsin*

Help Desk Answers provides answers to questions submitted by practicing family physicians to the Family Physicians Inquiries Network (FPIN). Members of the network select questions based on their relevance to family medicine. Answers are drawn from an approved set of evidence-based resources and undergo peer review.

The complete database of evidence-based questions and answers is copyrighted by FPIN. If interested in submitting questions or writing answers for this series, go to <http://www.fpin.org> or email: questions@fpin.org.

This series is coordinated by John E. Delzell, Jr., MD, MSPH, Assistant Medical Editor.

Clinical Question

Can insulin sensitizers be used to treat menstrual irregularities associated with polycystic ovary syndrome (PCOS)?

Evidence-Based Answer

Metformin, pioglitazone (Actos), and rosiglitazone (Avandia) can be used to improve menstrual cycling in women with PCOS. (Strength of Recommendation [SOR]: A, based on a meta-analysis.) However, metformin is much less effective than oral contraceptives (OCs). (SOR: A, based on a meta-analysis of randomized controlled trials [RCTs].)

A Cochrane review of 44 RCTs (N = 3,992) assessed the effectiveness of insulin-sensitizing drugs in improving reproductive and metabolic outcomes in women with PCOS.¹ Improvement in menstrual cycle irregularities was a secondary outcome. Metformin was more effective than placebo in improving the menstrual pattern (eight RCTs, N = 427; odds ratio [OR] = 1.7; 95% confidence interval [CI], 1.1 to 2.6). Pioglitazone (two RCTs, N = 70; OR = 8.9; 95% CI, 2.4 to 33) and rosiglitazone (two RCTs, N = 100; OR = 5.6; 95% CI, 2.2 to 14) also improved the menstrual pattern compared with placebo.

A Cochrane review (six RCTs, N = 174) compared the effectiveness and safety of insulin sensitizers with OCs in improving clinical, hormonal, and metabolic outcomes in women with PCOS.² In two trials

(n = 35), metformin was less effective than OCs in improving menstrual pattern (OR = 0.08; 95% CI, 0.01 to 0.45). Another RCT (n = 46), which was published after the Cochrane review, compared drospirenone/ethinyl estradiol with rosiglitazone.³ Normalization of menstrual pattern was a secondary measure achieved with both therapies (100% of patients receiving OCs had regular menstrual periods vs. 75% of those receiving rosiglitazone; P = .7), but the study was underpowered to detect a clinically meaningful difference.

Copyright Family Physicians Inquiries Network. Used with permission.

Address correspondence to Connie Kraus, PharmD, at connie.kraus@wisc.edu. Reprints are not available from the authors.

Author disclosure: No relevant financial affiliations.

REFERENCES

1. Tang T, Lord JM, Norman RJ, Yasmin E, Balen AH. Insulin-sensitizing drugs (metformin, rosiglitazone, pioglitazone, D-chiro-inositol) for women with polycystic ovary syndrome, oligo amenorrhoea and subfertility. *Cochrane Database Syst Rev*. 2012;(5):CD003053.
2. Costello M, Shrestha B, Eden J, Sjoblom P, Johnson N. Insulin-sensitising drugs versus the combined oral contraceptive pill for hirsutism, acne and risk of diabetes, cardiovascular disease, and endometrial cancer in polycystic ovary syndrome. *Cochrane Database Syst Rev*. 2007;(1):CD005552.
3. Tfayli H, Ulnach JW, Lee S, Sutton-Tyrrell K, Arslanian S. Drospirenone/ethinyl estradiol versus rosiglitazone treatment in overweight adolescents with polycystic ovary syndrome: comparison of metabolic, hormonal, and cardiovascular risk factors. *J Clin Endocrinol Metab*. 2011;96(5):1311-1319. ■