

Reproductive Life Cycle

Clinical Vignette

Psychotropic Medication Interaction with Contraception

Group 3: Trainee Guide

Contributors:

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Pre-Reading

- [Oral contraceptives induce lamotrigine metabolism: evidence from a double-blind, placebo-controlled trial.](#) Christensen J, Petrenaite V, Atterman J, Sidenius P, Ohman I, Tomson T, Sabers A. *Epilepsia*. 2007 Mar;48(3):484-9.
- [Ethinyl estradiol, not progestogens, reduces lamotrigine serum concentrations.](#) Reimers A, Helde G, Brodtkorb E.

Session Overview

- **Introduction to session and Case Discussion (20 minutes)**
- **Small group activity (20 minutes)**
- **Large group discussion: Take-home points (5 minutes)**

Learning Objectives

1. Learners will be able to discuss psychotropic medications and how they can affect metabolism of certain contraception.
2. Learners will be able to discuss birth control and its possible effect on a woman's mental health condition.

Case Scenario

Katherine Matthews is a 27-year-old single G0P0 graduate student with a long history of mood fluctuation, "rage," and impulsive behavior along with several documented episodes of depression characterized by irritability, sadness, anhedonia, social withdrawal, poor appetite, and suicidal ideation. Her symptoms first presented in adolescence, when she had two hospitalizations for suicidal behavior in the setting of substance use. She has been treated with low doses of various antidepressants, including sertraline, fluoxetine, and venlafaxine, all of which made her "edgy" and none of which was used for more than a few months. She has also tried aripiprazole 15 mg, which helped her mood but was associated with new-onset binge eating, and quetiapine, which "just made me fat and tired." She reports that her mood symptoms fluctuate mildly with her menstrual cycle, with increased irritability in the luteal phase.

Ms. Matthews' longtime therapist has been a stable presence in her life since college, and her symptoms have stabilized since she has been seeing you, the psychiatrist, for the past year. In your initial history, in addition to the above, you uncovered several discrete episodes of increased energy and productivity, during each of which Ms. Matthews felt fully rested on 3-4 hours of sleep a night. During these times she successfully submitted 12 applications for graduate school (though she had initially planned on only 4), planned an elaborate family vacation that was not realistic for her family and resulted in the family losing some non-refundable deposits, and spontaneously got in the car and drove 8 hours to pay a surprise visit on her college roommate.

Medical History: Non-contributory

Allergies: None

Family history: Ms. Matthews has a fraternal twin sister who suffers from PMDD, a mother with a history of postpartum depression, and a paternal uncle with bipolar I disorder.

Questions to Consider

1. How would you characterize Ms. Matthews' illness?
2. What are some other key symptoms that will be important to determine in this patient?

Case Scenario Continued

Upon first meeting Ms. Matthews a year ago, you decided to start lamotrigine. The patient tolerated the medication well, and you successfully titrated the dose to 300 mg. She has been stable on this dose for the past 9 months, with a level of 7.7. Her mood has been stable and she reports no premenstrual irritability. She has recently decreased the frequency of her visits to once every three months, and you have been congratulating yourself on your expert diagnostic and treatment skills.

Today, however, Ms. Matthews presents in clinic with garish lipstick, rapid speech, and convinced that she has some “fantastic” ideas about how to fix the perennial scheduling issues in your office. Upon questioning, she reports that she has been sleeping only 3-4 hours a night for the last month, but “this is good, I’m not tired at all.”

3. What questions should you be asking at this point?

Role Play Exercise (Pregnancy Group)

Facilitator solicits three groups of volunteers for doctor-patient role play (2 volunteers per group). Role play is conducted in front of larger group, with each doctor-patient pair using script as outlined below (separate scripts will be provided).

Patient: Not really, I can't think of any major changes in my life. I don't have a steady partner, so I don't really use contraception, just condoms.

Doctor: Any changes to your job, or any travel lately?

Patient: Ha, I wish.

Doctor: What about your social life? Have you been sexually active recently?

Patient: Well, just once, and that was a few months back, a guy I met at a party.

Doctor: And did you use condoms that night?

Patient: Honestly, I can't remember.

Doctor: OK. This extra energy you have, and the decreased sleep – was that already going on back then, when you met this guy?

Patient: Oh no, that's just been for the last week or so.

Doctor: Do you think there's any chance you could be pregnant?

Patient: Well, I haven't gotten my period in a while, but I don't really keep track so I'm not sure how long it's been. I only had sex with the guy once, so how likely is that?

Doctor: I'd like to send you for a couple of tests.

Facilitator begins discussion.

References

Oral contraceptives induce lamotrigine metabolism: evidence from a double-blind, placebo-controlled trial. Christensen J, Petrenaite V, Atterman J, Sidenius P, Ohman I, Tomson T, Sabers A. *Epilepsia*. 2007 Mar;48(3):484-9.

Lamotrigine dosing for pregnant patients with bipolar disorder. Clark CT, Klein AM, Perel JM, Helsel J, Wisner KL. *Am J Psychiatry*. 2013 Nov;170(11):1240-7. doi: 10.1176/appi.ajp.2013.13010006.

Effects of pregnancy and contraception on lamotrigine disposition: new insights through analysis of lamotrigine metabolites. Ohman I, Luef G, Tomson T. *Seizure*. 2008 Mar;17(2):199-202. doi: 10.1016/j.seizure.2007.11.017. Epub 2008 Jan 16.

Clinical pharmacokinetic interactions between antiepileptic drugs and hormonal contraceptives. Reddy DS. *Expert Rev Clin Pharmacol*. 2010 Mar 1;3(2):183-192.

Hormone replacement therapy with estrogens may reduce lamotrigine serum concentrations: A matched case-control study. Reimers A. *Epilepsia*. 2017 Jan;58(1):e6-e9. doi: 10.1111/epi.13597. Epub 2016 Nov 2.

Ethinyl estradiol, not progestogens, reduces lamotrigine serum concentrations. Reimers A, Helde G, Brodtkorb E. *Epilepsia*. 2005 Sep;46(9):1414-7.

Lamotrigine and GABAA receptor modulators interact with menstrual cycle phase and oral contraceptives to regulate mood in women with bipolar disorder. Robakis TK, Holtzman J, Stemmler PG, Reynolds-May MF, Kenna HA, Rasgon NL. *J Affect Disord*. 2015 Apr 1;175:108-15. doi: 10.1016/j.jad.2014.12.040. Epub 2014 Dec 24.

Pharmacokinetic interactions between contraceptives and antiepileptic drugs. Sabers A. *Seizure*. 2008 Mar;17(2):141-4. doi: 10.1016/j.seizure.2007.11.012. Review.

Effect of oral contraceptives on lamotrigine levels depends on comedication. Wegner I, Wilhelm AJ, Lambrechts DA, Sander JW, Lindhout D. *Acta Neurol Scand*. 2014 Jun;129(6):393-8. doi: 10.1111/ane.12197. Epub 2013 Nov 8.