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The Association of Hormonal Contraception with Depression

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Recommended Citation

Derickson, Pamela, "The Association of Hormonal Contraception with Depression" (2018). *Family Medicine Clerkship Student Projects*. 404.

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ASSOCIATION OF HORMONAL CONTRACEPTION WITH DEPRESSION

Pamela Derickson, MS-III

Community Health Improvement Project

The Community Health Centers of Burlington

Rotation 4, 2018

SLIDE 2: PROBLEM IDENTIFICATION

- Hormonal oral contraceptives (OCPs) are widely used by women during their reproductive years
- OCP use, especially among adolescents, is associated with subsequent use of antidepressants and a first diagnosis of depression, suggesting depression may be a potential adverse effect of hormonal contraceptive use¹

Description of need:

- Health care providers should be aware of newer literature showing the effect of hormonal contraceptive on mood so they can address mood changes and intervene appropriately

SLIDE 3: PUBLIC HEALTH COSTS OF DEPRESSION AND OCP USE

Hormonal oral contraceptives (OCPs) are widely used by women during their reproductive years:

- 17% of women in the US ages 15-44 currently use OCPs²
- 11.6 million American women use oral contraceptive pills as their primary contraceptive method³
- 82% of sexually active women in the USA will use OCPs at some time during their reproductive years⁴

Annually in the US:

- Office visits for contraception management total \$100 million in medical costs (CDC, 2012)⁵
- Depression affects up to 9 percent of patients and accounts for more than \$43 billion in medical care costs⁶
- Because of the association between OCP use and depression, many of these costs are overlapping

SLIDE 4: COMMUNITY PERSPECTIVE ON ISSUE

Interviewed multiple providers following the educational presentation:

- OCPs are not the most commonly prescribed birth control method at CHCB, compared to intrauterine systems and Nexplanon implants
- Multiple providers have previously observed that intrauterine systems and Nexplanon implants are removed more frequently than inserted, but this observation was not assessed to be related to mood or depression
- Current practices at CHCB do not include screening women on OCPs for depression beyond the recommendation by USPSTF for all adults to be screened for depression using the PHQ-2, and if that is positive, to then administer the PHQ-9
- Additional research was discussed by another provider about the incidence of OCP use and suicidality and suicide completion⁷

SLIDE 5: INTERVENTION AND METHODOLOGY

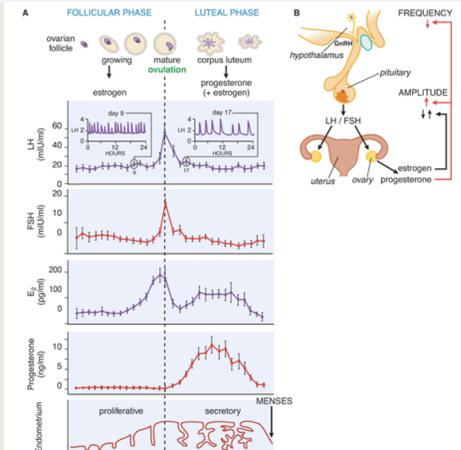
Intervention:

- This project focused on educating health care providers at the Community Health Center of Burlington, VT (CHCB) about the association of depression and oral contraceptives
- Providers then had an open discussion regarding prescribing habits at CHCB for OCPs and current follow-up procedures with patients after starting OCPs

Methodology:

- Reviewed literature on the incidence of OCPs and their association with depression, mood, suicidality, and neuroanatomic changes and present research to providers at CHCB

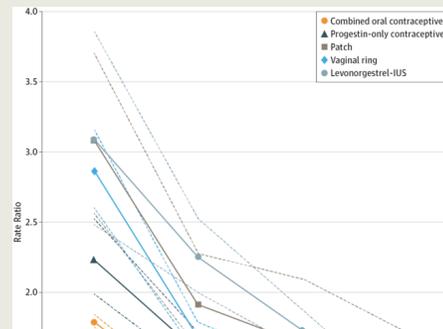
SLIDE 6: RESULTS



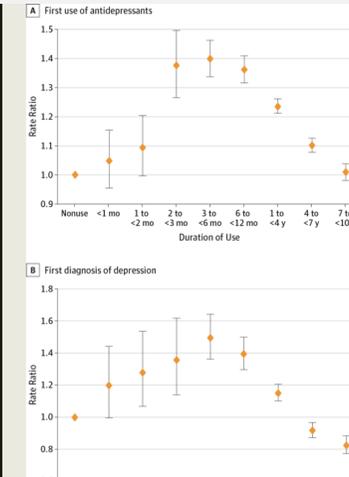
HOW DO ESTROGEN AND PROGESTERONE INFLUENCE BEHAVIOR AND THE BRAIN?

Pamela Derickson, MS-3

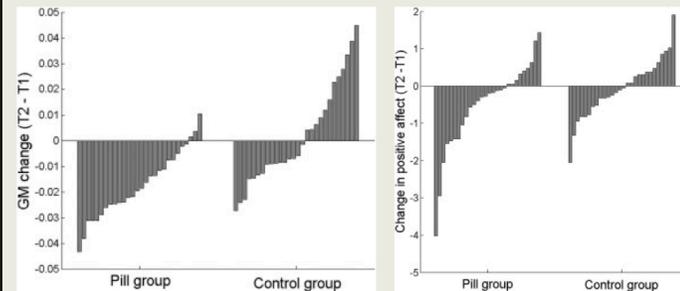
DO HORMONAL CONTRACEPTIVES INCREASE A WOMAN'S RISK OF DEPRESSION?



- Figure 1, Skovlund, et al. 2016
- Rate Ratio of First Use of Antidepressants by Contraceptive Type
- Includes all women in Denmark aged 15 to 34 years
- Use of most types of hormonal contraceptives is compared with nonuse by



- Figure 2, Skovlund, et al. 2016
- Rate Ratios of First Use of Antidepressants and First Diagnosis of Depression
- Rate ratios are stratified by length of hormonal contraceptive use
- Error bars indicate 95% CIs.



- Figures 2, 5 from Lisofsky, et al. 2016
- LEFT: Individual change scores for gray matter (GM) volume in the amygdala and parahippocampal gyrus between OCP and control group. Negative values represent a decrease in GM volume and positive values an increase in GM volume.

SLIDE 7A: EVALUATION OF EFFECTIVENESS

- Information was provided through an in-person presentation to providers and circulated via email to all providers at CHCB, ensuring all providers had access to the presentation
- A survey will be distributed to assess effectiveness of the presentation to providers at CHCB
 - The survey includes any change in prescribing practices, so it will be issued in a one-month interval
 - The survey also includes any change in follow-up screening for depression in women on OCPs

SLIDE 7B: EVALUATION OF LIMITATIONS

- Not all providers at CHCB could attend the presentation, and the information distributed in an email may not be as effective as an in-person presentation
- The literature provided was for clinicians at CHCB, and not for patients. This may dilute the amount of information provided to patients regarding symptoms of depression with OCP use
- Physician apprehension to change their current practices of prescribing OCPs due to their ability to prevent unwanted pregnancy, ease of use, and relative cost-effectiveness

SLIDE 8: RECOMMENDATIONS FOR FUTURE INTERVENTIONS

- More studies with more robust study designs to further correlate relationships between OCPs, mood, depression, suicidality and neuroanatomic changes especially in our community
- Future research will focus on women's PHQ-9 and GAD-7 (two validated scoring systems to quantify symptoms of depression and anxiety, respectively) before starting OCPs and at 3-month, 6-month, and 1-month follow up appointments pending IRB approval
- Age-matched women not on OCPs will be used as controls with PHQ-9 and GAD-7 scores recorded at 3-month, 6-month, and 1-month follow up appointments

SLIDE 9: REFERENCES

1. Skovlund, C. W., Morch, L. S., Kessing, L. V., & Lidegaard, O. (2016). Association of hormonal contraception with depression. *JAMA psychiatry*, 73(11), 1154-1162.
2. Carrol, 2017- New York Times (<https://www.nytimes.com/2017/04/03/upshot/birth-control-causes-depression-not-so-fast.html>)
3. Mosher WD, Martinez GM, Chandra A, Abma JC, Willson SJ. Use of contraception and use of family planning services in the United States: 1982–2002. *Adv Data* 2004;350:1–36.
4. Jones J, Mosher W, Daniels K. Current contraceptive use in the United States, 2006–2010, and changes in patterns of use since 1995. *National health statistics reports*; no 60. Hyattsville, MD: National Center for Health Statistics. 2012.
5. Trussell J, Lalla AM, Doan QV, Reyes E, Pinto L, Gricar J. Cost effectiveness of contraceptives in the United States. *Contraception*. 2009;79(1):5–14.
6. Maurer, D. (2012). *Am Fam Physician*. 2012 Jan 15;85(2):139-144.
7. Skovlund, C. W., Morch, L.S., Kessing., L. V., Lange, T., Lidegaard, O. (2017). Association of Hormonal Contraception with Suicide Attempts and Suicides. *Am J Psychiatry*. 2018 Apr 1;175(4):336-342.