


2018

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

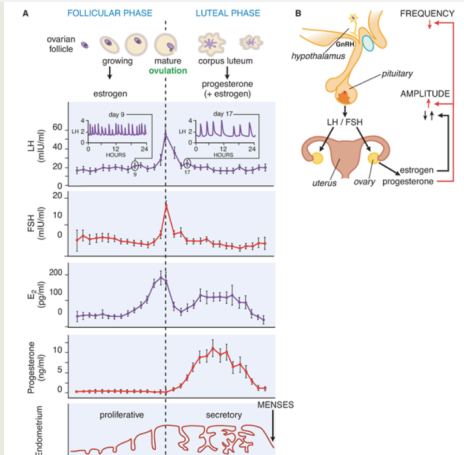
Intervention:

- 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

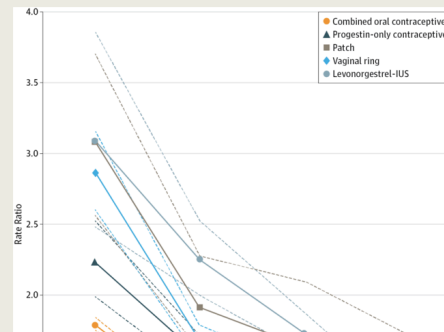
SLIDE 6: RESULTS



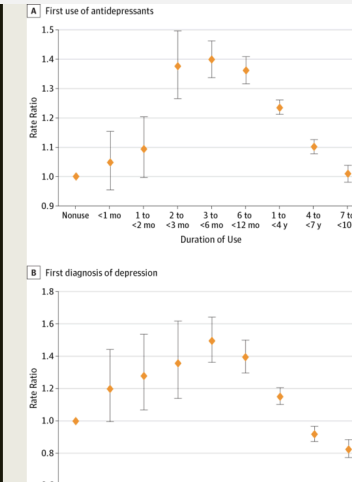
HOW DO ESTROGEN AND PROGESTERONE INFLUENCE BEHAVIOR AND THE BRAIN?

Pamela Derickson, MS-3

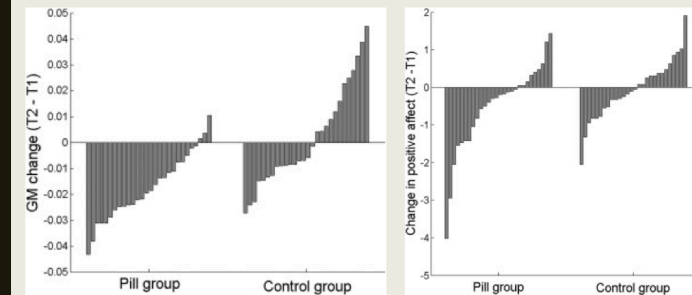
DO HORMONAL CONTRACEPTIVES INCREASE A WOMAN'S RISK OF DEPRESSION?



- 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 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.
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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.
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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.