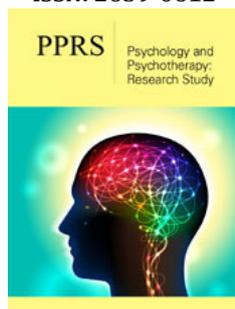


Oral Contraceptive and Depressive Disorder Probable Mechanisms

Abolfazl Talebi*

Masshad university of medical science, Iran

ISSN: 2639-0612



***Corresponding author:** Abolfazl Talebi,
Masshad university of medical science,
Iran

Submission: 📅 April 05, 2022

Published: 📅 April 20, 2022

Volume 5 - Issue 4

How to cite this article: Abolfazl Talebi*. Oral Contraceptive and Depressive Disorder Probable Mechanisms. Psychol Psychother Res Stud. 5(4). PPRS. 000617. 2022. DOI: [10.31031/PPRS.2022.05.000617](https://doi.org/10.31031/PPRS.2022.05.000617)

Copyright@ Abolfazl Talebi, This article is distributed under the terms of the Creative Commons Attribution 4.0 International License, which permits unrestricted use and redistribution provided that the original author and source are credited.

Abstract

Between contraceptive methods, estrogen- progesterone containing contraceptive drugs are frequently prescribed for prevention of unwanted pregnancy and menstrual cycle disturbances with wide-spread use of these drugs side effects become important, recent data declare association between use of contraceptive drugs and debilitating depression disorder that can have financial and medical harms, clarifying probable mechanisms of experiencing depression among contraceptive drug users will help us to reduce and controlling side effect of these drugs.

Keywords: Oral contraceptive; Depression; Mechanism

Introduction

Depression is a frequent mental disease and cause high debilitating psychiatric disorder [1] it characterized by insomnia, depressed mood and memory and cognitive problems [2] and evidences revealed depression has increased by last year's [3], women have double risk for suffering depression [4] that declare importance of research about finding risk factors for affection of women. Use of oral contraceptive drugs is very common between women and have frequently prescribe for prevention of unwanted pregnancy, menstrual cycle disturbances and hormonal replacement therapy [5], because of global use of contraceptive drugs even minor side effect can cause widespread medical impression.

Recently epidemiologic studies argued that oral contraceptive drugs are associated with depression disease, Cecilia Lundin et al. [6] in study of 184 women aged over 18 years old found women were sooner started contraceptive drugs more often suffered depressive symptoms, Khafagy et al. [7] in study of 124 female between 18-45 years found 27.5 percent increase in experience depression in women used contraceptive drugs, Anderl et al. [8] in a prospective case control cohort study of 534 contraceptive drug user and 191 non user found contraceptive drugs are associated with increased risk of experience major depressive disorder. Early studies declare vitamin b6 deficiency among contraceptive drug users and needs for supplement therapy [9], Vitamin b6 is an essential nutrient and have important role in synthesis and catabolism of neurotransmitters. Recent data declare vitamin b6 deficiency is associated with depressive symptoms, Merete C et al. [10] in study of 618 old person found vitamin b6 deficiency is associated with twisted depressive symptoms, Anne Mette Hvas [11] in study of 140 person found lower vitamin b6 serum concentration significantly associated with depressive score among participant, Curtin AC et al. [12] in a double blinded study found oral vitamin b6 supplement therapy reduce symptoms of depression among oral contraceptive drug users. Contraceptive drugs also have interference with serotonin metabolisms in brain, high concentrated progesterone containing contraceptive drugs can increase level of serotonin breakdown in brain [13].

Conclusion

Based on recent studies contraceptive estrogen-progesterone containing drugs can cause depressive disorders with two mechanism:

First vitamin b6 is an essential co-factor in tryptophan serotonin pathway, with lack of sufficient vitamin b 6 tryptophan's other metabolites such as 3-Hydroxykynurenine increase in brain that have neurotoxic effect and based on studies increased in major depressive disorders and also level of serotonin decrease [14,15].

Second, oral contraceptive drugs can change brain normal hormonal physiology, it can change gene expression of serotonin transporter [16], serotonin 4 receptor is one of serotonin receptors families and have a key operation in executive and reward related functions in brain and its down regulation is correlated with depressive like behaviors [17], recent studies demonstrated oral contraceptive drug users have dramatically decreased amount of serotonin 4 receptor [18]. Overall, for recommendations or restriction of contraceptive drugs we still need more sufficient, subtle and large population based studies.

References

- Bromet, E, Andrade LH, Hwang I, Sampson NA, Alonso J, et al. (2011) Cross-national epidemiology of DSM-IV major depressive episode. *BMC medicine* 9(1): 1-16.
- Association AP (2013) DSM 5 diagnostic and statistical manual of mental disorders p. 947.
- WHO (2014) Health for the world's adolescents. A second chance in the second decade. Geneva, Switzerland.
- Kessler RC, McGonagle KA, Swartz M, Blazer DG, Nelson CB, et al. (1993) Sex and depression in the national comorbidity survey I: Lifetime prevalence, chronicity and recurrence. *J Affect Disord* 29(2-3): 85-96.
- Daniels K, Jones J (2013) Contraceptive methods women have ever used: United States, 1982-2010. *Natl Health Stat Report* 14(62): 1-15.
- Lundin C, Wikman A, Bixo M, Danielsson KM, Poromaa IN (2021) Towards individualized contraceptive counselling: Clinical and reproductive factors associated with self-reported hormonal contraceptive-induced adverse mood symptoms. *BMJ Sex Reprod Health* 47(3): e8.
- Khafagy GM, Shalaby HL, Saad NE, Hasan MD (2021) Effect of the monthly injectable combined contraceptives versus oral contraceptive pills on mood. *Korean J Fam Med* 42(6): 471-476.
- Anderl C, Anouk E De Wit, Giltay EJ, Oldehinkel AJ, Chen FS, et al. (2022) Association between adolescent oral contraceptive use and future major depressive disorder: A prospective cohort study. *J Child Psychol Psychiatry* 63(3): 333-341.
- Bossé TR, Donald EA (1979) The vitamin B6 requirement in oral contraceptive users. *Nutr Rev* 37(11): 344-345.
- Merete C, Falcon LM, Tucker KL (2008) Vitamin B6 is associated with depressive symptomatology in Massachusetts elders. *J Am Coll Nutr* 27(3): 421-427.
- Hvas AM, Juul S, Bech P, Nexø E (2004) Vitamin B6 level is associated with symptoms of depression. *Psychother Psychosom* 73(6): 340-343.
- Curtin AC, Johnston CS (2022) Vitamin B6 supplementation reduces symptoms of depression in college women taking oral contraceptives: A randomized, double-blind crossover trial. *J Diet Suppl* pp. 1-13.
- Bonenberger M, Groschwitz RC, Kumpfmüller D, Georg G, Plener PL, et al. (2013) It's all about money: Oral contraception alters neural reward processing. *Neuroreport* 24(17): 951-955.
- Marx W, McGuinness AJ, Rocks T, Ruusunen A, Cleminson J, et al. (2021) The kynurenine pathway in major depressive disorder, bipolar disorder, and schizophrenia: A meta-analysis of 101 studies. *Mol Psychiatry* 26(8): 4158-4178.
- Wilson SM, Bivins BN, Russell KA, Bailey LB (2011) Oral contraceptive use: Impact on folate, vitamin B6, and vitamin B12 status. *Nutrition reviews* 69(10): 572-583.
- Lu N, Eshleman AJ, Janowsky A, Bethea CL (2003) Ovarian steroid regulation of serotonin reuptake transporter (SERT) binding, distribution, and function in female macaques. *Mol Psychiatry* 8(3): 353-360.
- Rebholz H, Friedman E, Castello J (2018) Alterations of expression of the serotonin 5-HT₄ receptor in brain disorders. *Int J Mol Sci* 19(11): 3581.
- Larsen S, Forsberg KK, Dam VH, Poulsen AS, Svarer C, et al. (2020) Oral contraceptives and the serotonin 4 receptor: A molecular brain imaging study in healthy women. *Acta Psychiatr Scand* 142(4): 294-306.

For possible submissions Click below:

[Submit Article](#)