

POSTPARTUM DEPRESSION - GENETIC PROFILLING AND ITS CORRELATION WITH OXYTOCIN LEVELS

Tsokkou S.¹, Katsikidou Th.¹, Michail K.¹, Tsiakalos S.¹, Kavvadas D.¹, Georgaki N.M.¹, Papamitsou T.¹, Karachrysa S.¹

¹Laboratory of Histology-Embryology, Medical Department, School of Health Sciences, Aristotle University of Thessaloniki, Thessaloniki, Greece

Postpartum Depression (PPD) is the depression suffered by a mother following childbirth - arising from a **combination of hormonal change**, physical adjustment to motherhood, fatigue and postnatal depression

A major depressive episode occurs **within 4 weeks post-delivery**, and symptoms can **continue up to 1 year postpartum**

3 MAIN CATEGORIES AND SYMPTOMS

BABY BLUES (affects 50-75% women)

- Constant crying for NO reason
- Anxious
- Sad
- Tired

POSTPARTUM DEPRESSION (affects 1 to 7 women)

- Unable to perform daily tasks
- Unable to take care of their child
- Severe mood swings
- Lack of bonding with their child

POSTPARTUM PHYCOSIS (affects 1 to 1,000)

- Extreme risk of harming their child
- Hallucinations and Delusions
- Lack of energy

TREATMENT

✓ Disappears within 2 weeks **without** treatment

✓ **Psychotherapy** and **Antidepressants**

- ✓ Antipsychotics
- ✓ Mood stabilisers
- ✓ Hospitalisation in Mother Baby Unit (MBU)
- ✓ ELECTROCONVULSIVE THERAPY (ECT)



MOTHER - INFANT RELATIONSHIP

Children born from mothers that suffer PPD have high risks of developing:

1. SOCIOEMOTIONAL
2. COGNITIVE DEVELOPMENT ISSUES

INTRUSIVE mother leads child to develop **COPING MECHANISMS**

WITHDRAWING mother leads child to be **EMOTIONALLY UNCONTROLLABLE**



OXYTOCIN AND OXTR

- **OT** affects cell by binding to **OXTR**
- **OXTR** transcription **regulated by DNAm** at CpG sites

- **OXTR Methylation** results in various conditions such as Autism Spectrum Disorder and Callous-unemotional traits

- In mice **OXTR deletion** led to deficit on **maternal behavior**
- **OXTR** is a **risk factor for PPD Development**

CONCLUSION

Interactions **between OXTR variant rs53576** and **DNAm** have significant association with **PPD**

Studies suggest **SILENCING the OXTR rs53576** and thus **lower OT sensitivity to RESTORE MOTHER'S EMOTIONAL WELL BEING**

• Stewart DE, Vigod SN. Postpartum Depression: Pathophysiology, Treatment, and Emerging Therapeutics. *Annu Rev Med.* 2019 Jan 27;70:183-196. doi: 10.1146/annurev-med-041217-011106. PMID: 30691372.

• Mehta D, Grewen K, Pearson B, Wani S, Wallace L, Henders AK, Binder EB, Frokjaer VG, Meltzer-Brody S, Wray NR, Stuebe AM. Genome-wide gene expression changes in postpartum depression point towards an altered immune landscape. *Transl Psychiatry.* 2021 Mar 4;11(1):155. doi: 10.1038/s41398-021-01270-5. PMID: 33664235; PMCID: PMC7933180.

• Couto TC, Brancaglioni MY, Alvim-Soares A, Moreira L, Garcia FD, Nicolato R, Aguiar RA, Leite HV, Corrêa H. Postpartum depression: A systematic review of the genetics involved. *World J Psychiatry.* 2015 Mar 22;5(1):103-11. doi: 10.5498/wjp.v5.i1.103. PMID: 25815259; PMCID: PMC4369539.