

Role of Epigenetic and Endocrine Factors On Emotion and Cognition During the Menstrual Cycles

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Women show increased preposition for certain psychiatric disorders, such as depression, which are associated with dysfunction in emotion and cognition. It is well known that sex hormones may modulate emotional and cognitive factors. Also, epigenetic regulation plays a critical role on the biological control of feelings, behaviors and cognition. Knowledge on the role of epigenetic and sexual hormonal factors on emotion and cognition in the menstrual cycles remains limited.

In the current study we aim to explore the impact of epigenetic and sexual hormones on emotion and cognition at different time points of the menstrual cycle. We are investigating 110 females (age 18-40) with or without normal menstruation during the different cycle phases at MHH (Hannover) and UZH (Zurich). The main outcome measures are endocrinological parameters (estradiol, progesterone, LH, FSH, and testosterone), which will be integrated in a mathematical model (Berlin, Zurich, Rome). This model helps us to forecast the hormonal secretion patterns in women and shall finally improve the fertility therapy. This is part of another study called PAEON.

In the current study neuropsychological tests using CANDIT (Computer Assisted Neuropsychological Diagnostics and Therapy) and epigenetic analyses (Methylation of promotor-associated CpG-region) employing bisulfite sequencing are performed during the different cycle phases.

This study makes it possible to better understand cycle-related changes of emotion and cognition, which could be regulated by cycle-sensitive changes of certain epigenetic factors (e.g. serotonin receptors). We present this project and the preliminary data.