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醫學院/醫學系

- 2024 全球前 2%頂尖科學家（World’s Top 2% Scientists 2024）

本團隊以經期前情緒障礙症(premenstrual dysphoric disorder, PMDD) 為研究核心，長年探究 PMDD 之精神病理與生理機轉，近五年研究著重於 PMDD 與月經週期發炎機制之關聯，於 2024 年發表 Estrogen, progesterone, cortisol, brain-derived neurotrophic factor, and vascular endothelial growth factor during the luteal phase of the menstrual cycle in women with premenstrual dysphoric disorder。這篇文章探討卵巢荷爾蒙（雌激素、黃體素）、壓力激素（cortisol）以及其他生物標記（如腦源性神經滋養因子 BDNF 和血管內皮生長因子 VEGF）在經期前情緒障礙症女性黃體期的變化與症狀之間的關聯。研究納入 58 名 PMDD 女性和 50 名健康對照組，分析她們在排卵前期、黃體中期及黃體晚期的荷爾蒙濃度及 PMDD 相關症狀。結果顯示 PMDD 女性在黃體中期和晚期的黃體素濃度越高，其症狀惡化程度越明顯，且黃體素總和與症狀加劇有顯著相關。**此外**，PMDD 女性在黃體晚期的 cortisol 濃度高於對照組，顯示壓力反應與症狀相關。BDNF 濃度與 PMDD 症狀惡化呈負相關，且 BDNF 和 VEGF 與注意力缺失及甜食渴望的減少有關。研究結果顯示荷爾蒙的波動與 PMDD 的密切關聯，特別是黃體素與皮質醇可能在症狀發展中扮演重要角色。

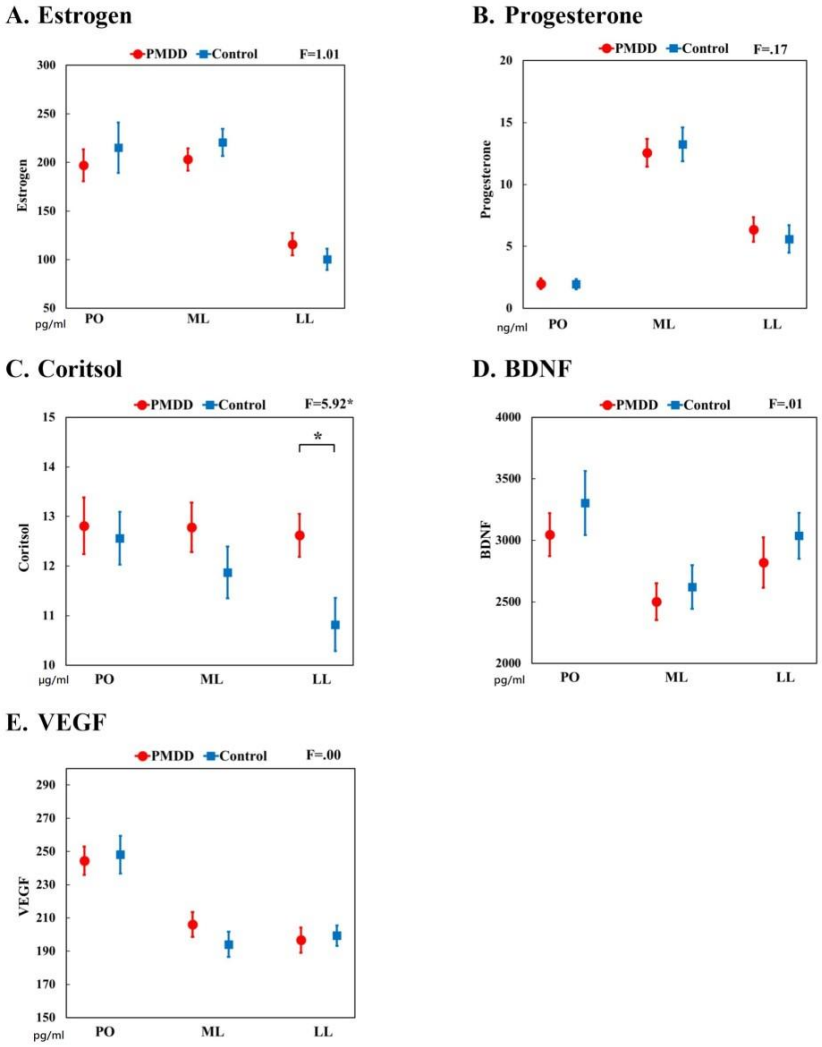

Fig. 2. Repeated measures ANOVA of premenstrual dysphoric disorder (PMDD) and menstrual phase effects on the levels of estrogen, progesterone, cortisol, brain-derived neurotrophic factor (BDNF), and vascular endothelial growth factor (VEGF) in women with PMDD.

【具體成果】

2024 全球前 2%頂尖科學家（World’ s Top 2% Scientists 2024）

【研究團隊】

團隊成員：

主要研究人員: 顏如佑教授、柯志鴻教授、龍震宇教授

研究助理: 吳姿瑩助理、林祺助理、易鳳珠助理

團隊簡介：

顏如佑教授為女性精神醫學專家，鑽研經期前情緒障礙症之流行病學、精神病理與生理機轉。柯志鴻教授擅長精神疾病之神經認知研究，為遊戲障礙症研究領域之先驅。龍震宇教授專精於婦產科學研究。

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Our team focuses on **premenstrual dysphoric disorder (PMDD)** as the core of our research, with a longstanding investigation into the psychopathology and physiological mechanisms of PMDD. Over the past five years, our studies have emphasized the connection between PMDD and inflammatory mechanisms across the menstrual cycle. In 2024, we published the article *"Estrogen, progesterone, cortisol, brain-derived neurotrophic factor, and vascular endothelial growth factor during the luteal phase of the menstrual cycle in women with premenstrual dysphoric disorder."* This study explores the relationship between ovarian hormones (estrogen and progesterone), stress hormones (cortisol), and other biomarkers (such as brain-derived neurotrophic factor [BDNF] and vascular endothelial growth factor [VEGF]) and their association with PMDD symptoms during the luteal phase.

The study included 58 women with PMDD and 50 healthy controls, analyzing hormone concentrations and PMDD-related symptoms across the preovulatory, mid-luteal, and late-luteal phases. Results showed that higher progesterone levels in the mid- and late-luteal phases were significantly associated with greater symptom severity in women with PMDD, with the total progesterone levels strongly correlated with symptom exacerbation. Additionally, cortisol levels were elevated in the late-luteal phase in women with PMDD compared to controls, indicating a link between stress response and symptoms. Lower BDNF levels were negatively correlated with symptom worsening in PMDD, and both BDNF and VEGF were associated with reduced attention and decreased craving for sweets.

The findings highlight a close connection between hormonal fluctuations and PMDD, with progesterone and cortisol playing key roles in symptom development.

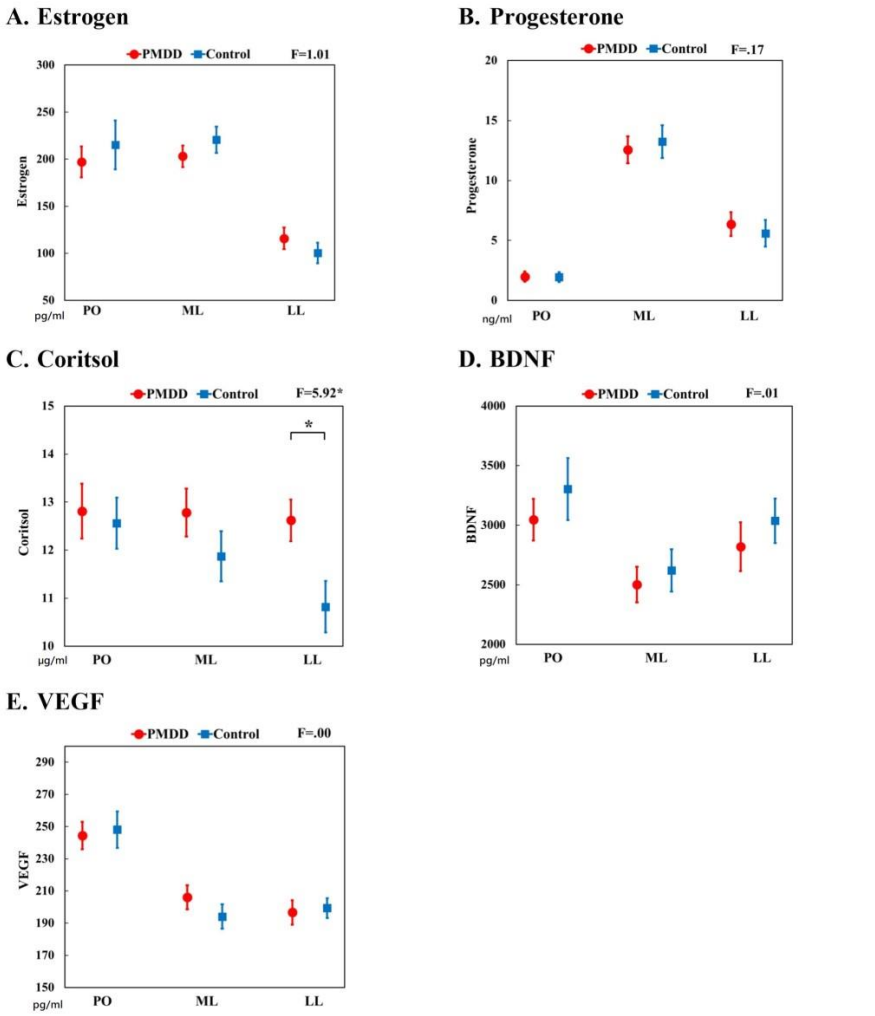

Fig. 2. Repeated measures ANOVA of premenstrual dysphoric disorder (PMDD) and menstrual phase effects on the levels of estrogen, progesterone, cortisol, brain-derived neurotrophic factor (BDNF), and vascular endothelial growth factor (VEGF) in women with PMDD.

Concrete Results:

The 2024 World’s Top 2% Scientists list released by Stanford University.

【Research Team】

Team Members:

Principal Investigators: Professor Ju-Yu Yen, Professor Chih-Hung Ko, Professor Chen-Yu Long

Research Assistants: Assistant Tzu-Ying Wu, Assistant Chi Lin, Assistant Feng-Chu Yi

Research Team Introduction:

1.Professor Ju-Yu Yen is an expert in women's psychiatry, specializing in the epidemiology, psychopathology, and physiological mechanisms of premenstrual dysphoric disorder (PMDD).
2.Professor Chih-Hung Ko excels in neurocognitive research on psychiatric disorders and is a pioneer in the field of gaming disorder studies.
3.Professor Chen-Yu Long specializes in research in obstetrics and gynecology.

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