MORNING AND EVENING CONCENTRATIONS OF SALIVARY ALDOSTERONE AND CORTISOL THROUGHOUT THE MENSTRUAL CYCLE IN HEALTHY WOMEN

Jezova D.[1], Hlavacova N.[1] ,Izakova L. [2],

[1] Institute of Experimental Endocrinology, Biomedical Research Center, Slovak Academy of Sciences, Bratislava, Slovakia
[2] Department of Psychiatry, Faculty of Medicine, Comenius University and University Hospital Bratislava, Slovakia

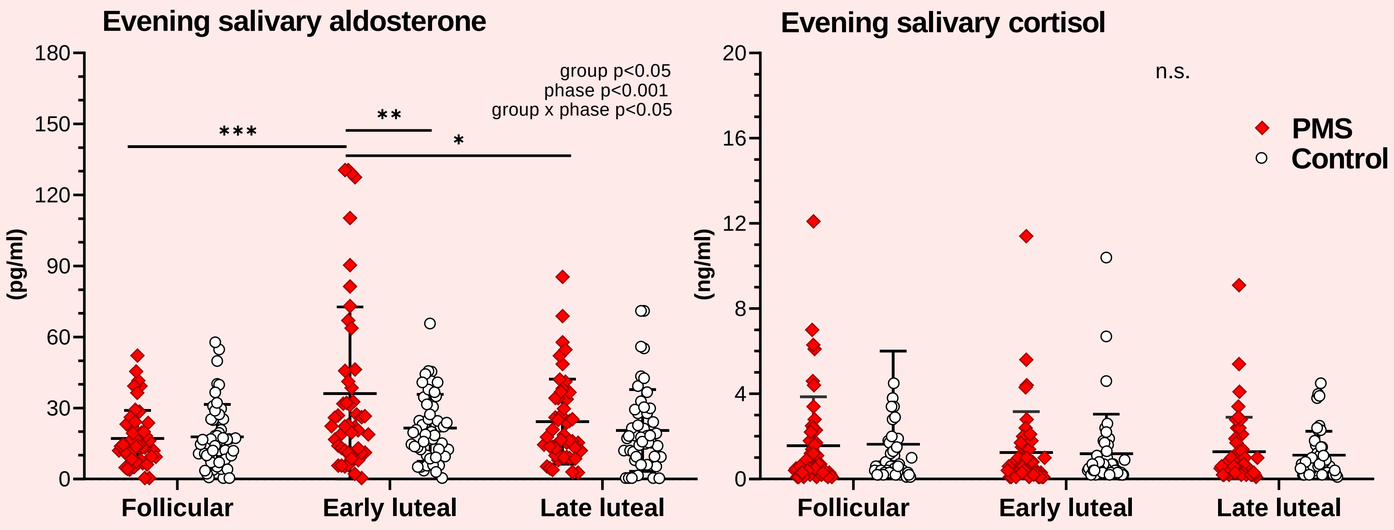
Introduction

In many women, the menstrual cycle is accompanied by emotional and somatic symptoms which occur in the late luteal phase and are called premenstrual syndrome (PMS). A small part of women experiences more severe premenstrual symptoms classified as premenstrual dysphoric disorder (PMDD). Despite intensive research, there is still a lack of consistent evidence on the dysregulation of steroid stress hormones cortisol and aldosterone in premenstrual syndrome.

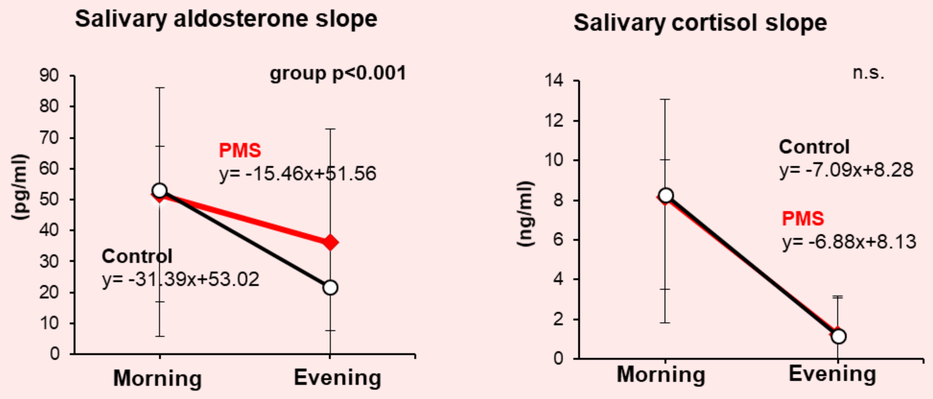
Main hypothesis

Salivary aldosterone concentrations are higher in women with premenstrual symptoms compared to asymptomatic women, particularly during the luteal phase of the menstrual cycle.

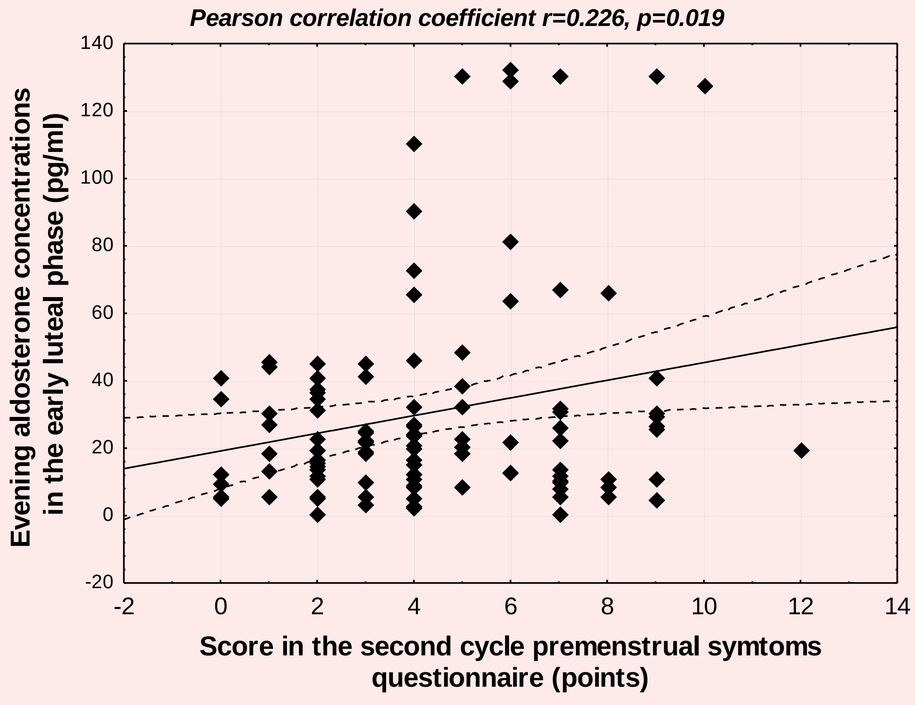
Results



Salivary aldosterone concentrations were higher in women with premenstrual symptoms during the early luteal phase compared to women without PMS. This difference was recorded in the evening. Salivary cortisol concentrations at both time intervals studied were unchanged throughout the menstrual cycle in both groups of women.



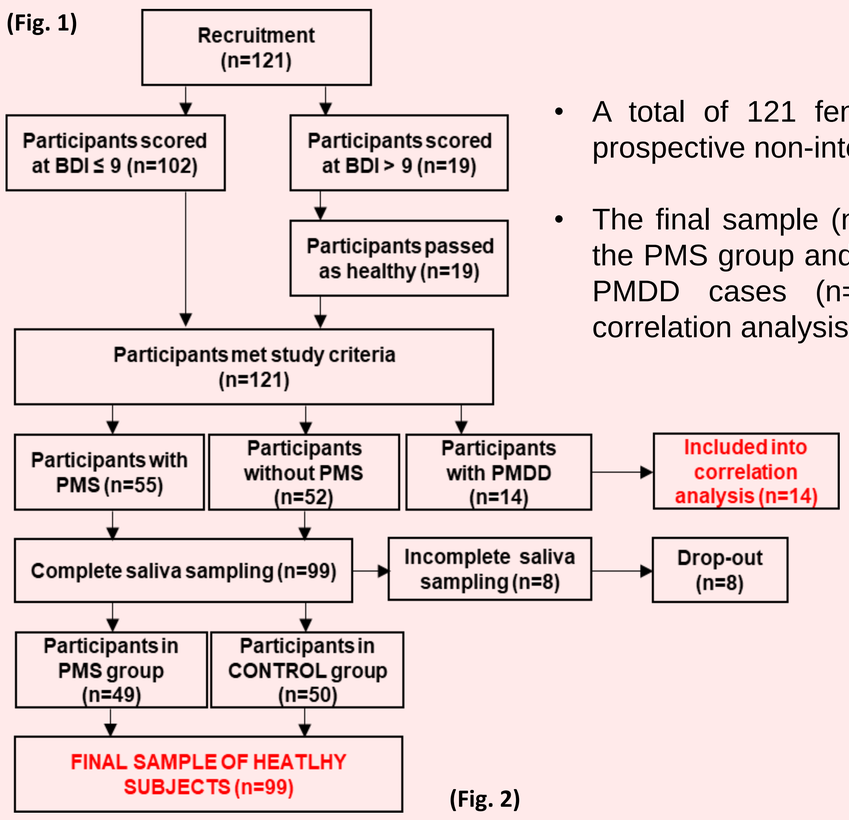
The women with PMS exhibited a flatter morning to evening aldosterone slope. Morning to evening cortisol slopes in the early luteal phase were similar in PMS cases and controls.



Early luteal phase aldosterone concentrations positively correlated with premenstrual symptoms in the whole sample of women (healthy controls, healthy PMS, PMDD).

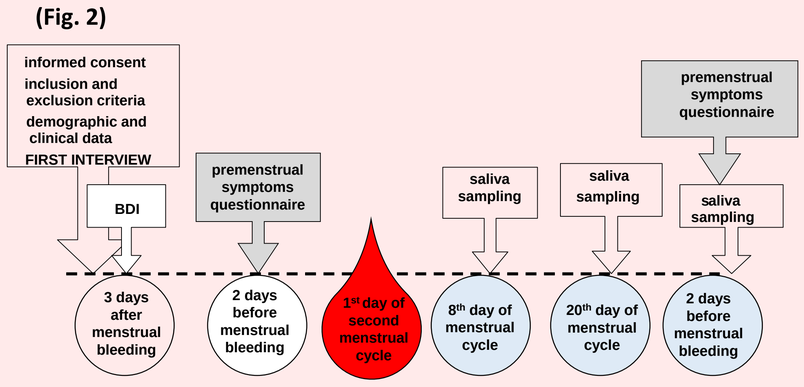
Methods

(Fig. 1)



- A total of 121 female subjects participated in a prospective non-interventional clinical study (Fig. 1).
- The final sample (n=99) consisted of 49 women in the PMS group and 50 women in the control group. PMDD cases (n=14) were included into the correlation analysis.

(Fig. 2)



- Saliva samples were obtained in the follicular (8th day), early luteal (20th day), and late luteal phase (26th day) of the menstrual cycle in the morning as well as in the evening (Fig. 2).
- Concentrations of cortisol in saliva were determined using a commercially available enzyme-linked immunosorbent assay (IBL International, Germany). Salivary aldosterone concentrations were measured by a modified methodology (Jezova&Hlavacova 2008) using a commercial radioimmunoassay kit (Immunotech, France).
- ANOVA for repeated measures with group (PMS vs. Control) and phase (follicular, early luteal and late luteal phase of the menstrual cycle) with subsequent Tukey post-hoc teste was used.

Conclusions

• Evening salivary aldosterone but not cortisol concentrations are increased in women with premenstrual symptoms during the early luteal phase compared to asymptomatic women.

• Cortisol does not appear to be involved in the mechanisms contributing to the course of PMS.

• A rise in evening aldosterone concentration in the early luteal phase precedes the symptoms of premenstrual syndrome.

The authors declare no clonflict of interest.

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