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Progesterone metabolite allopregnanolone in women with premenstrual syndrome

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Objective

To evaluate the anxiolytic 3 α -5 α -reduced progesterone metabolite allopregnanolone in the luteal phase of the menstrual cycle in women with premenstrual syndrome (PMS) and controls.

Methods

Thirty-five women with prospectively documented PMS and 36 controls were evaluated. Serum progesterone and allopregnanolone levels were measured on days 19 and 26 of the cycle as determined by urinary LH detection kits. Analysis of variance and Student *t* tests were used to analyze the data.

Results

Allopregnanolone levels were significantly lower on day 26 in the PMS group than in controls (3.6 \pm 0.8 versus 7.5 \pm 1.3 ng/mL; *P* < .04). Significant differences in the ratio

of the metabolite to progesterone also were noted, with a smaller ratio in the PMS subjects (0.9 ± 0.3 versus 3.2 ± 1.3 ng/mL; $P < .05$). There were no significant differences between the PMS and control groups with respect to serum progesterone levels.

Conclusion

Subjects with PMS manifested lower levels of the anxiolytic metabolite allopregnanolone in the luteal phase when compared with controls. Diminished concentrations of allopregnanolone in women with PMS may lead to an inability to enhance gamma aminobutyric acid-mediated inhibition during states of altered central nervous system excitability, such as ovulation or physiologic or psychological stress. The lowered metabolite levels could contribute to the genesis of various mood symptoms of the disorder, such as anxiety, tension, and depression.



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