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Anxiolytic Effect of Melatonin in Premenstrual Dysphoric Disorder

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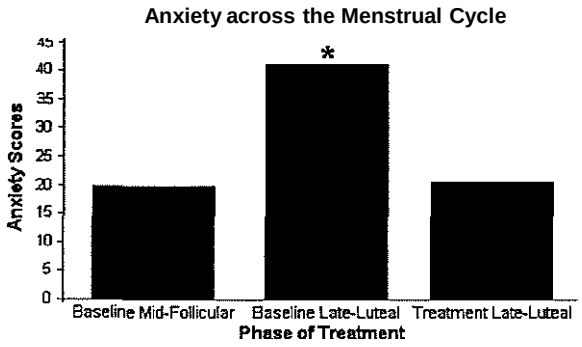
Increases in anxiety levels during the late-luteal phase of the menstrual cycle form important diagnostic criteria of premenstrual dysphoric disorder (PMDD) (1). Evidence exists to support the hypothesis that tolerance to endogenous levels of melatonin might occur during the luteal phase in PMDD (2, 3). It was hypothesized that slow release (SR) melatonin administration during the luteal phase of the menstrual cycle of participants with PMDD could significantly lower anxiety levels measured by self-report.

Three participants (aged 32-41) diagnosed with PMDD were examined for a period of >6 menstrual cycles. Daily anxiety self-report scales ranging from 0 to 100 confirmed PMDD. After 3 menstrual cycles, participants were administered 2 mg SR melatonin 1 h prior to bedtime during the luteal phase for 3 menstrual cycles. Mid-follicular (second week) and late-luteal (last week) scores were compared between baseline and treatment conditions using a Wilcoxon signed ranks test.



Baseline anxiety was 19.76 (S.D.=24.57) during the mid-follicular phase and 41.23 (S.D.=33.84) during the late-luteal phase. This represents a 473% increase across the menstrual cycle *(P*< 0.0001). Treatment period anxiety levels during the late-luteal phase were 20.5 (S.D.=24.63), thus reduced to 50% of the baseline values of the luteal phase. Treatment period results from the late-luteal phase were comparable to those of the mid-follicular phase (P=0.523).

Anxiety does vary significantly across the menstrual cycle in women with PMDD. Exogenous melatonin administration exerted a significant anxiolytic effect in participants. Whether melatonin administration counteracts a reduced activity of endogenous melatonin levels or rather exerts an independent pharmacological anxiolytic effect remains unclear. Despite these concerns, these results support the proposed hypothesis and suggest that reduced melatonin secretion and/or sensitivity may play a role in PMDD. A placebo trial and a control group is required to better understand the mediating factors involved.

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References

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