



The late-luteal leptin level, caloric intake and eating behaviors among women with premenstrual dysphoric disorder



Chih-Hung Ko^{a,b,c}, Cheng-Fang Yen^{b,c}, Cheng-Yu Long^d,
Yu-Ting Kuo^e, Cheng-Sheng Chen^{b,c}, Ju-Yu Yen^{b,c,f,*}

^a Department of Psychiatry, Kaohsiung Municipal Hsiao-Kang Hospital, Kaohsiung Medical University, Kaohsiung, Taiwan

^b Department of Psychiatry, Faculty of Medicine, College of Medicine, Kaohsiung Medical University, Kaohsiung City, Taiwan

^c Department of Psychiatry, Kaohsiung Medical University Hospital, Kaohsiung, Taiwan

^d Department of Obstetrics and Gynecology, Kaohsiung Medical University Hospital, Kaohsiung, Taiwan

^e Department of Radiology, Chi-Mei Medical Center, Tainan, Taiwan

^f Department of Psychiatry, Kaohsiung Municipal Ta-Tung Hospital, Kaohsiung, Taiwan

Received 19 October 2014; received in revised form 28 February 2015; accepted 1 March 2015

KEYWORDS

Premenstrual dysphoric disorder (PMDD);
Caloric intake;
Leptin;
Uncontrolled eating

Summary

Objectives: A marked increase in food intake in the late-luteal phase is a characteristic symptom of premenstrual dysphoric disorder (PMDD). The aim of the study was to evaluate the leptin level, caloric intake, and eating behaviors of women with PMDD across the menstrual cycle among normal-weight and overweight subjects, respectively.

Methods: A total of 62 women with PMDD and 69 controls were recruited following psychiatric interviewing and underwent prospective investigation. The leptin level, caloric intake, and three factors related to eating behavior were assessed in both the late-luteal and follicular phases.

Results: The women with PMDD had greater increases in caloric intake, sweet caloric intake, and uncontrolled eating in the late-luteal phase than the controls. Among the normal-weight women, the leptin level was negatively correlated with caloric intake. The normal-weight women with PMDD had a lower leptin level, a lower leptin/body fat percentage (BFP), a higher caloric intake, and higher uncontrolled eating and emotional eating in the late-luteal phase than the normal-weight controls. Their leptin level was correlated negatively with sweet caloric intake. On the other hand, the overweight women with PMDD had a higher leptin level than the normal-weight women with PMDD and no decline was observed in their leptin level in the

* Corresponding author at: Department of Psychiatry, Kaohsiung Medical University Hospital, 100, Tzyou 1st Road, Kaohsiung 80708, Taiwan. Tel.: +886 7 3121101x6822.

E-mail address: yenjuyu@cc.kmu.edu.tw (J.-Y. Yen).

late-luteal phase. There were no differences in the leptin level between the overweight women with PMDD and the overweight controls. They also had a higher sweet caloric intake and higher uncontrolled eating and emotional eating than the overweight controls.

Conclusions: A decline in the leptin level is associated with late-luteal overeating among normal-weight women with PMDD. Hyperleptinemia and a high sweet caloric intake of overweight women with PMDD should be monitored and addressed in order to attenuate the risk of leptin resistance. The detailed roles of leptin and other psycho-neuro-endocrinology factors in the mechanism of overeating among women with PMDD should be evaluated in future study.

© 2015 Elsevier Ltd. All rights reserved.

1. Introduction

Premenstrual dysphoric disorder (PMDD) was included as an official diagnostic criteria in the DSM 5 in 2012 (American Psychiatric Association, 2012) based on adequate evidence (Epperson et al., 2012). It is defined as having predictable, cyclic, and functional-impairing psychological and somatic symptoms, such as depression, irritability, lethargy or hypersomnia. These symptoms are aggravated in the late-luteal phase of the menstrual cycle and resolved by menstruation (Rapkin and Winer, 2009). Marked changes in appetite and overeating are typical concomitant PMDD symptoms (American Psychiatric Association, 2012) and are affected by the menstrual cycle among women with PMDD (Yen et al., 2010). Evaluation of hormones that fluctuate during the menstrual cycle and affect eating behavior, such as leptin, may provide insight into the mechanism of overeating symptoms among women with PMDD.

1.1. The caloric intake of women with PMDD

Food intake is reduced in the periovulatory phase and increased during the luteal phase among women (Buffenstein et al., 1995; Dye and Blundell, 1997; Van Vugt, 2010), particularly among those with PMDD (Evans et al., 1999; McNeil and Doucet, 2012). Women with PMDD have been reported to eat more calories in the late-luteal phase than in the follicular phase as compared with control women (Reed et al., 2008). Further, sweet food craving is exacerbated in the late-luteal phase among women with PMDD (Yen et al., 2010). These results indicated that women with PMDD increase their food intake in the late-luteal phase. However, whether women with PMDD have an increased caloric intake and an increased sweet caloric intake in the late-luteal phase as compared with healthy women has not been empirically evaluated throughout the menstrual cycle. Additionally, the underlying factors contributing to the changes in caloric intake among women with PMDD are not well-understood (McNeil and Doucet, 2012).

1.2. The role of leptin in the appetite of women with PMDD

Leptin, a hormone secreted by adipocytes, acts on the hypothalamus to regulate appetite and neuroendocrine function (Cohen, 2006). Leptin has a role in ovulation through its stimulation of the pituitary to secrete luteinizing hormone (LH) (Fenichel et al., 2008). The administration of

recombinant leptin has been shown to restore menses and fertility in women with hypothalamic or leptin deficiency amenorrhea (Chou et al., 2011; von Schnurbein et al., 2012). Recent studies have demonstrated that the leptin level is increased over the menstrual cycle, with a mid-cycle peak concurrent with the LH surge (Ahrens et al., 2014). These studies all indicated that leptin is related to not only eating behavior, but also to the menstrual cycle (Goumenou et al., 2003). One study revealed a significant decline in leptin among women with PMDD in comparison with controls (Akturk et al., 2013). As leptin plays key roles in the menstrual cycle and appetite and has been found to be altered among women with PMDD, further study is necessary to evaluate the alterations in the leptin level and their effects on the caloric intake of women with PMDD (Akturk et al., 2013).

Further, leptin is transported across the blood-brain-barrier by a saturable transporter system and exerts its anorectic effect via the hypothalamic arcuate nucleus. It results in a reduced food intake and an increased energy expenditure (Suzuki et al., 2012). However, obese individuals often have high leptin levels, which result in a failure to respond to exogenous leptin (Suzuki et al., 2012). Obesity has been reported to be associated with PMDD (Masho et al., 2005). The moderating effect of being overweight should be considered when evaluating the association between leptin and caloric intake. Further, there exist complex associations between the menstrual cycle, leptin level, eating behavior, obesity, and PMDD (McNeil and Doucet, 2012), and evaluation of these factors across the menstrual cycle with analysis separately in overweight and normal-weight women may provide insight into the effect of leptin on the late-luteal caloric intake among women with PMDD.

1.3. The role of PMDD symptoms and associated factors in caloric intake in the late-luteal phase

Aside from hormone levels, mood, stress, and rewarding characteristics contribute to overeating behavior (Jauch-Chara and Oltmanns, 2014). Depression and irritability are the cardinal symptoms of PMDD (Ko et al., 2013; Yen et al., 2011). Emotional eating is an eating behavior motivated by multiple negative emotions (Chesler, 2012) and moderate stress-induced food intake in females (van Strien et al., 2014). Further, women with PMDD have a higher impulsivity (Yen et al., 2011). Impulsivity is associated with uncontrolled eating (Leitch et al., 2013), a tendency to eat more than usual due to a loss of control over intake (Karlssoon et al.,

متن کامل مقاله

دریافت فوری ←

ISIArticles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات