THE EFFECT OF EVENING PRIMROSE OIL IN MANAGEMENT OF PREMENSTRUAL SYNDROME

Thesis

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بسم الله الرحمن الرحيم
﴿قَالُوا سُبْحَانَكَ لَا عِلْمَ لَنَا إِلَّا مَا
عَلَّمْتَنَا إِنَّكَ أَنتَ الْعَلِيمُ الْحَكِيمُ﴾
سورة البقرة
آية رقم :(32)

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ABSTRACT

Background & Rationale: Premenstrual syndrome (PMS) may have a considerable impact on women's QOL. Evening primrose oil as an herbal treatment has a role in alleviating premenstrual syndrome-related symptoms, CAM therapies (specifically Herbs) have gained popularity.

Objectives: Evaluate effectiveness of primrose oil in management of premenstrual syndrome -related symptoms.

Material & Methods: The study was Single- blinded placebo controlled study. Females in childbearing period with premenstrual syndrome, mild, moderate or severe symptom were enrolled from Primary health care unit (ELDARASSA family health center at Cairo). PMS Self Evaluation Questionnaire (PEQ) was used for rating symptoms before & after intervention. For 4cycle (1cycle baseline and 3 cycle treatment).

Primary outcome Results: Results show substantial health improvement upon using primrose oil. This study showed that there was significant difference between women in the study group and control group. Regarding improvement after treatment in psychological symptoms: was highly significant in depression symptom with P value (**.001)**, and statistically significant in anxiety with P value (**.**012). For physical symptoms: breast tenderness highly significant with P value (.000) and acne statistically significant with P value (**.**012).While the difference in the rest of symptoms was not significant. The mean of the total PMS score among studied group according to PMS Self Evaluation Questionnaire (PEQ) before intervention was 25.7±7.7 and it turned to be 18.1±6.5 after intervention and this difference was statistically highly significant.

Conclusion: Evening primrose oil has been found to significantly improve subjective measures of premenstrual syndrome symptoms in frequency & severity decreasing the climacteric distress among females in childbearing period in this Single- blinded placebo controlled study.

Keywords: Premenstrual syndrome, Evening primrose oil, herbal treatment, Complementary & alternative medicine.

List of abbreviations

5-HT	Serotonin
ACOG	The American College of Obstetricians and Gynecologists
CAM	Complementary and Alternative Medicine
CAMs	Complementary and Alternative therapies
CBT	Cognitive behavior therapy
CITs	Complementary and integrative therapies
COC	Combined oral contraceptive pill
EFAs	Essential fatty acids
EPO	Evening primrose oil
FPs	Family physicians
FSH	Follicle stimulating hormone
GABA	Gamma-aminobutyric acid
GLA	γ -linoleic acid
GnRH	Gonadotropin-releasing hormone
HPG	Hypothalamic-pituitary-gonadal
LH	Luteinizing hormone
LNG-IUS	Levonorgestrel-releasing intrauterine system
NCCAM	National Center for Complementary And Alternative Medicine
NMDA	N-methyl-D-aspartate
PMDD	Premenstrual dysphoric disorder
PMS	Premenstrual syndrome
PUFAs	Polyunsaturated fatty acids
RCOG	Royal College of Obstetricians and Gynaecologists
RCTs	Randomized controlled trials
SMD	Standardized mean difference
TMM	Trimonoaminergic modulator

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INTRODUCTION

Premenstrual syndrome (PMS) (also called PMT or premenstrual tension) affects millions of women during their reproductive years. The disorder manifests with distressing physical, behavioral and psychological symptoms, in the absence of organic or underlying psychiatric disease, which regularly recurs during the luteal phase of each menstrual (ovarian) cycle that are of sufficient severity to interfere with some aspects of life, deterioration of interpersonal relationships and normal activity. Premenstrual dysphoric disorder (PMDD) is considered a severe form of PMS. The symptoms usually occur about 5 to 11 days before a woman starts her monthly menstrual cycle, and stop when menstruation begins, or shortly thereafter ***(ACOG, 2010).***

The number of women who experience PMS depends entirely on the stringency of the definition of PMS. The World Health Organization estimates that 199 million women have premenstrual syndrome as of 2010 (5.8% of the female population) ***(Flaxman et al., 2012)***. According to the American Academy of Family Physicians (AAFP), at least 85 percent of menstruating women have experienced at least one symptom that could be attributed to PMS each month. Nearly 20% of women experience PMS; approximately 10% are affected severely. Studies indicate that 14-88% of adolescent girls have moderate-to-severe symptoms. Another 3-5% of women meet the criteria for PMDD ***(Lori et al, 2003).***

Treatment goals for PMS are to ameliorate or eliminate symptoms, reduce their impact on activities and interpersonal relationships, and minimize adverse effects of treatment. Although numerous treatment strategies are available, few have been adequately evaluated in randomized, controlled trials. Initially, all patients with PMS should be offered no pharmacologic therapy ***(ACOG, 2000)***.

CAM is defined as "a group of diverse medical and health care systems, practices and products that are not presently considered to be part of conventional medicine." Therapies within CAM are categorized as complementary when they are combined with conventional medicine. Alternative therapies are defined as those that replace conventional medicine. These definitions are often blurred, and the list of what is considered to be CAM changes as therapies that are proven to be safe and effective are adopted into conventional medicine (**NCCAM, 2012**).

Types of CAM therapies include vitamins, herbal products, acupuncture, massage, energy work, homeopathy and meditation. Women are the most likely users of CAM therapies, premenstrual syndrome and menopause symptoms are among the top 15 medical conditions managed with CAM therapies in the United States (**NCCAM, 2009**).

Evening primrose (*Oenothera biennis*) is one of the more commonly used herbal medications. In 2005, evening primrose was ranked as the 12th top-selling herb in the United States with $5 303

904 in sales ***(Blumenthal et al., 2006)***. Allopathic providers are expected to practice evidence-based medicine; however, much of the data available to practitioners regarding herbal preparations are anecdotal. Scientific studies regarding the use of these preparations are now reported more regularly. ***Cohen and colleagues (2000)*** pointed out that many studies performed on herbals lack scientific rigor in that they may lack randomization, placebo control, sufficient numbers of participants, or significant length of time. Most allopathic providers were not provided with education regarding complementary and integrative therapies (CITs) in their medical curricula. Because of the fact that more patients are using herbal preparations (and many other forms of CITs), it is imperative that all healthcare providers learn as much as they possibly can about these popular medicinal plants.

The rationale for this use is that women with PMS have an abnormal profile of essential fatty acids, which may be normalized by supplementation with EPO. Women with PMS have high levels of n6 essential fatty acids but low levels of all metabolites of linoleic acid, including arachidonic acid. PMS is associated with a defect in the conversion of linoleic acid to gamma-linolenic acid, resulting in an inefficient conversion of fatty acids to prostaglandin E1 (PGE1). Evidence shows that prostaglandin E1 (derived from Essential Fatty Acids) is able to reduce the biological actions of prolactin, an agent responsible for some PMS symptoms ***(Edilberto et al., 2011).***

AIM OF WORK

Improving the quality of life of women in reproductive years suffering from distressing premenstrual syndrome affecting the QOL, and to give an attention for the premenstrual syndrome at the primary health care units.

- Objective; Evaluate effectiveness of primrose oil in management of premenstrual syndrome -related symptoms.
- Hypothesis; primrose oil is able to improve PMS symptoms than placebo.
- Research Question; Does the primrose oil improve PMS symptoms in female in child bearing period?

PREMENSTRUAL SYNDROME

Premenstrual syndrome (PMS) affects millions of women during their reproductive years. The disorder is characterized by the cyclic recurrence of symptoms during the luteal phase of the menstrual cycle ***(Wyatt et al., 2000)***. Symptoms typically begin between the ages of 25 and 35 years. Women who have severe affective symptoms may also meet criteria for premenstrual dysphoric disorder (PMDD). In both PMS and PMDD, symptoms diminish rapidly with the onset of menses ***(Dickerson et al., 2003)***.

Premenstrual syndrome is clinically diagnosed if certain symptoms that impair some facet of a woman's life occur only during the luteal phase of the menstrual cycle (one week before menstruation), and if other diagnoses that may better explain the symptoms are excluded (table 1) ***(ACOG, 2000)***.

Up to 85 percent of menstruating women report having one or more premenstrual symptoms, and 2 to 10 percent report disabling, incapacitating symptoms ***(ACOG, 2000)***. More than 200 symptoms have been associated with PMS, but irritability, tension, and dysphoria are the most prominent and consistently described ***(Steiner and Born, 2000)***.

PMS and PMDD symptoms may recur with each ovulatory cycle until menopause, although the severity and frequency of different symptoms may vary over time ***(Dennerstein et al., 2009)***. Duration of symptoms each month averages six days, with severity

usually peaking anywhere from two days before to the first day of the menstrual flow ***(Yonkers et al., 2008)***. PMS and PMDD have been shown to negatively affect relationships, work attendance, productivity, and health care costs and utilization ***(Rapkin and Winer, 2009)***.

Table (1): Symptoms Associated with Premenstrual Syndrome and Premenstrual Dysphoric Disorder

Physical	Psychological	Behavioral
Abdominal bloating **Body aches** **Breast tenderness and/or fullness** **Cramps, abdominal pain** **Fatigue** **Headaches** **Nausea** **Swelling of extremities** **Weight gain**	Irritability anger depressed mood crying and tearfulness anxiety mood swings lack of concentration confusion forgetfulness restlessness loneliness decreased self-esteem	fatigue insomnia dizziness changes in sexual interest food cravings overeating

(Dennerstein et al., 2009).

Definition

A working definition of PMS is "a condition which manifests with distressing physical, behavioural and psychological symptoms not due to organic or underlying psychiatric disease, which regularly recurs during the luteal phase of each menstrual (ovarian) cycle and which disappears or significantly regresses by the end of menstruation" ***(Magos and Studd, 1984)***.

The severity of symptoms is judged according to the degree of interference with day-today activities and relationships (Table 2). Premenstrual exaggeration or exacerbation of symptoms can also

occur, though this is not regarded as the "core" diagnosis. Premenstrual dysphoric disorder (PMDD) is the American Psychiatric Association's definition of severe PMS in the Diagnostic and Statistics Manual – Version IV ***(Panay, 2009)***.

Table (2): Definitions of the different types of premenstrual syndrome

Type	Definition
Premenstrual syndrome (PMS)	PMS symptoms leading up to menstruation and completely relieved by the end of menstruation.
mild	Does not interfere with personal/social and professional life.
moderate	Interferes with personal/social and professional life but still able to function and interact, although may be suboptimally.
severe	Unable to interact personally/socially/professionally – withdraws from social and professional activities (treatment resistant).
Premenstrual exaggeration	Background psychopathology, physical or other condition with incomplete relief of symptoms when menstruation ends.
Premenstrual dysphoric disorder	This is a research criterion, not in general use outside the USA. This definition of severe PMS has been adopted by the American Psychiatric Association.

(ACOG, 2000).

On a more global scale, the International Society for the Study of Premenstrual Disorders has been working on reaching a consensus on a definition and management of premenstrual