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Short Communication

The potential use of olfactory sensitivity to exaltolide test in gynecology

Mbonimpaye Regis[1*] Claros P[1],

[1]Department of Otorhinolaryngology, Former Scholarship of Clarós Foundation, Barcelona, Spain

[2]Department of Obstetrics and Gynecology, Clinica Claros, Barcelona, Spain

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ABSTRACT

In our recently published article, we highlighted the reproducible variations in sensitivity to Exaltolide with closer relation to the levels of estrogen in women. This commentary will focus on the potential applications of this feature, particularly in the field of Gynecology and obstetrics. The potential utilities of the olfactory sensitivity to Exaltolide odor in women covers a wide range of physiological and pathological conditions.

Keywords: Estrogen, Olfaction test, Exaltolide, Women, Gynecology diseases

INTRODUCTION

Potential use of Olfactory Sensitivity to Exaltolide in Monitoring Ovulation Time

To date, a number of methods are used to detect ovulation time in women of reproductive age [1]. Basal body temperature is usually used by women to detect ovulation time and predict the fertile period by charting their resting temperature every day and noting the rise in temperature caused by ovulation [2]. Ovulation is triggered by an estrogen-mediated preovulatory LH surge. The LH flow, which closely follows the estrogen peak, happens during the afternoon of prooestrus and triggers ovulation almost 10-12 hours later [3]. Thus, we assume that olfactory sensitivity to Exaltolide could be used in monitoring the set-up of puberty and detecting the ovulation time.

Potential use of Olfactory Sensitivity to Exaltolide in Predicting Estrogen Deficiency

According to the results of our study, estrogen deficiency would be revealed by a decreased olfactory sensitivity to Exaltolide [4]. Estrogen deficiency can be found in case of delayed puberty, premature ovarian insufficiency, secondary amenorrhea as well as menopause [5].

Generally, puberty is delayed if there is no breast development by 13 years in girls. Constitutional delay of growth and puberty represents the commonest cause of delayed puberty in both sexes and at least 30% of girls with delayed puberty. No matter the cause of estrogen deficiency, delayed puberty negatively affects fertility, sexuality, bone density and ultimately the quality of life. Induction of puberty with estrogen replacement therapy is often required to prevent the above disorders [6]. According to the Europian Society of Human Reproduction and Embryology, Premature Ovarian Insufficiency (POI) is a clinical syndrome defined by loss of ovarian activity before the age of 40.

*Corresponding author. Mbonimpaye Regis, E-mail: mbonimpaye88@gmail.com

It is associated with low levels of estradiol. The prevalence of POI is approximately 1%. Symptoms of POI vary and are sometimes preceded by menstrual cycle changes. Some of them such as hot flushes and night sweats are characteristic of estrogen deficiency. Other symptoms comprise yspareunia, vagina dryness, sleep disturbance, mood changes, poor concentration, stiffness, dry eyes, altered urinary frequency, low libido, and lack of energy. Untreated POI can cause reduction of life expectancy, largely due to cardiovascular disease. In addition, association of POI with reduced bone mineral density is common and exposes patients to an increased risk of fracture later in life. To maintain bone health and prevent osteoporosis, estrogen replacement is recommended and is likely to reduce the risk of fracture [7]. Thus, a low olfactory sensitivity to Exaltolide is expected during untreated POI and estrogen replacement therapy would be associated with an increased sensitivity. Hyperprolactinemia is a condition often associated with decreased estradiol concentrations and amenorrhea or oligomenorrhea. Prolactin concentrations are higher in women with amenorrhea than in those with oligomenorrhea. A wide range of causes including sellar masses, primary hypothyroidism, chronic renal failure, cushing's disease, sellar trauma, and iatrogenic causes can result in hyperprolactinemia. In some particular cases, estrogen replacement therapy is initiated to prevent relevant complications [8]. Hypothalamic amenorrhea is another entity often caused by excessive weight loss, exercise, or stress. Return to normal menses is usual after a healthy body weight is regained. Young athletes may develop the famous female athlete triad that consists of an eating disorder, amenorrhea, and osteoporosis. In patients with amenorrhea caused by eating disorders or excessive exercise, oral contraceptive pills or menopausal hormone therapy may be used to decrease bone turnover and partially reverse bone loss. Menopause is retrospectively defined as time of the final menstrual cycle, followed by 12 months of amenorrhea. Post-

menopause is the period following the final menses. The major consequences of menopause are primarily related to estrogen deficiency. Systemic estrogen therapy is often recommended treatment for vasomotor symptoms and the associated sleep disturbance [9]. As highlighted in our study, post-menopausal women are insensitive or lesser sensitive to the odor of Exaltolide [10]. Thus, a raised sensitivity to the odor of Exaltolide would be predictive of efficacy of post-menopausal women under estrogen replacement therapy.

Potential use of Olfactory Sensitivity to Exaltolide in Predicting Excessive Estrogen

Excessive levels of estrogen are likely to be predicted by a high sensitivity to Exaltolide [11]. Ovarian Hyperstimulation Syndrome (OHSS) is a potentially fatal iatrogenic complication of ovulation stimulation occurring during the luteal phase. In severe forms, electrolyte disturbances and cardiopulmonary, hepatic, renal and hemodynamic disturbances associated with increased thromboembolic risk can worsen the prognosis. Many researchers concluded that an elevated serum estrogen concentration at the day of human chorionic gonadotropin administration represents a risk factor for OHSS. Monitoring serum estradiol was found to be effective in reducing the incidence of OHSS and undertaking a preventive method such as coasting.

Potential use of Olfactory Sensitivity to Exaltolide in Monitoring Hormonal Contraception

Even though the majority of women who use the birth control pill will not experience any side-effects at all, some of them may experience mild side-effects and rarely severe ones. In fact, menstrual disorders are the result of both the dominating levels of estrogens and the more or less suppressed endometrium.

Symptoms of excessive estrogen activity may include vomiting, nausea, edema, weight increase, gastrointestinal disorders, breast tenderness, dizziness, headache, premenstrual tension.

On the other side, estrogen deficiency can be revealed by symptoms such as sweating, hot flushes, irritability, neurodegenerative alterations, vaginal dystrophic changes, metrorraghias, hypomenorrhea, decreased libido.

CONCLUSION

Several conditions culminating in variations of estrogen levels in women can be predicted by variations in olfactory sensitivity to Exaltolide. It would be exciting to provide the world's women with a special device, simple to use, offering them both a sensual fragrance and an idea of their estrogen levels.

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