Oestrogen and mood

Clinical points

- Oestrogen plays an important role in regulating mood and on mental health.
- The mental health of adolescents may be affected by higher levels of oestradiol.
- Perimenopause is a window of vulnerability for increased risk for the onset of depressive symptoms and depressive disorders in women.
- Up to a third of women have difficulty tolerating the oral contraceptive pill.
- Contraceptive use should be included in mental health assessments.
- Subjective descriptions of lower mood by patients should prompt a review of contraceptive use.
- SERMs may be a valuable therapeutic possibility for women with schizophrenia.

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The role of oestrogen in the development of mood disorders needs to be considered, especially in periods of vulnerability such as post-childbirth and menopause.

NEW ERA OF MEDICINE

WE ARE moving into a new medical paradigm of gender-based medicine and it is imperative for GPs to understand how this will impact their work.

An important element of gender-based medicine is the growing body of evidence linking oestrogen and mood. The 'oestrogen protection hypothesis' has increased our understanding of the 'windows of vulnerabilities' in the life stages of women, leading to improved, targeted therapeutic interventions. This approach also has implications for combined oral contraceptive pill (COCP) management.

THE 'OESTROGEN PROTECTION' HYPOTHESIS

Oestrogens are a class of neurosteroids that interact with many neurotransmitters and brain circuits, in addition to exerting their primary endocrine and reproductive functions.

Oestrogen receptors are mainly located within the hypothalamus but have recently been identified in many other areas of the brain. So extensive are oestrogen neuroprotective and neuromodulatory properties that they have been dubbed 'nature's psychoprotectant'.

WINDOWS OF VULNERABILITY

Windows of vulnerability are seen in various life stages in women's lives. For example, the mental health of adolescents may be affected by higher levels of oestradiol. In addition, life cycle studies have shown that women are more vulnerable for either a first episode or relapse of existing illness at two major periods of hormonal change: post-childbirth and during menopause.

PERIMENOPAUSE

Perimenopause is now viewed as a time of increased risk for the onset of depressive symptoms and depressive disorders in women. This may be related to alterations in hormonal activity such as higher FSH and LH levels and increased oestradiol secretion as opposed to later perimenopause which is distinguished by high FSH levels and decreased oestradiol secretion.

Women who may be at greater risk are those who experience early severe vasomotor or psychological symptoms, i.e. onset of bothersome symptoms up to three years before the menopause, are more likely to experience diminution of their symptoms by their fourth postmenopausal year. In contrast, women with later onset severe symptoms are more likely to have symptoms that persist for several years.

OESTROGEN AND MENTAL HEALTH

Exacerbation of psychosis has been observed during the low oestrogen phases of the menstrual cycle. Premenstrual depression is also linked to the low oestrogen phase of the menstrual cycle.

Epidemiological and life cycle evidence suggests that schizophrenia is a sexually dimorphic condition and that oestrogen is protective against psychotic illness. Women predisposed to schizophrenia appear to be particularly protected from the early-onset form of the illness due to high levels of oestrogen, and consequent dopamine suppression raising the vulnerability threshold.

COCP AND DEPRESSION

The physical side effects of the COCP are well known, however the relationship between the COCP and depression is less well understood. This is despite depression being the most common reason given for discontinuing the COCP.

Depression is one of the most prevalent and debilitating illnesses affecting the female population today, with up to a quarter of Australian women affected during their lifetime.

About a quarter of Australian women of reproductive age currently use the pill and it is the most preferred form of contraception.

THERAPEUTIC CONSIDERATIONS

When assessing patients for COCP use, family history of depression should be noted. In patients reporting low mood or depressive symptoms, a change in oral contraceptive should be considered in collaboration with the patient.

A woman's hormonal status should also be integrated into the assessment and treatment of a psychotic illness, with particular attention being paid to periods of fluctuating oestrogen levels, especially perimenstrually, postpartum and during the perimenopause. SERMs may be a valuable therapeutic possibility for women with schizophrenia.

SIDE EFFECTS

The use of therapeutic standard oestrogen treatment can cause blood clotting disorders and increase the risk of tumours in breasts, ovaries and uterus. In men, oestrogen can lead to feminisation and sexual dysfunction. However, the development of SERMs such as raloxifene, has the potential to deliver improved mental health without the risks associated with standard oestradiol.

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