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The Menopause

Definition

The menopause in it's literal definition means the 'end of monthly cycles'; from the Greek word paussis (cessation) and the root men- (month)[1]. This definition, however, refers to a woman's final menstrual cycle; in some women there is an abrupt end to menstruation, but in most the menopause is a gradual process – with periods becoming either less frequent and with longer intervals between them, or sometimes heavier, before they eventually stop[2].

Normally, menopause occurs during the ages of 45-55; with the UK average age being 52 years old[3]. Menopause is classified as 'complete' when menstrual periods have ceased for over one year. After this period a woman is 'post-menopausal'; the physiological changes the postmenopausal woman has gone though during the menopause ultimately result in her no longer being able to become pregnant. It is a universal, irreversible, natural life transition women go through[2].

Pathology

The menopausal transition (MT) is period of time leading up to and immediately following the menopause in which hormonal changes and clinical symptoms occur; this begins years before the cessation of periods[4].
In the normal subject, during a woman's late forties, FSH levels begin to increase, followed shortly by LH – suggested reasons for this include the decrease in follicles. Oestrogen levels then fall, resulting in disruption of the menstrual cycle. Eventually, the menopausal state of low oestrogen levels and grossly elevated LH and FSH is established[4].

Risk factors for an early menopause

If menopause occurs before the age of 45, it is classified as 'early menopause'. Risk factors that have been found to contribute to an early menopause include:

- Smoking[5]
- Hysterectomy[6]
- Oophorectomy
- Fragile X carriers
- Autoimmune disorders
- Living at a high altitude
- Some chemotherapies and radiotherapies[2]

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Symptoms and signs

The usual, initial symptom of the menopause is the change in the menstrual cycle as discussed previously; in addition to this there are many physical symptoms as depicted in figure 1[7].

Psychological symptoms also occur in the menopause, these include:

- Loss of libido
- Loss of self-esteem
- Anxiety
- Depression
- Sleeping problems
- Irritability
- Loss of concentration[2]

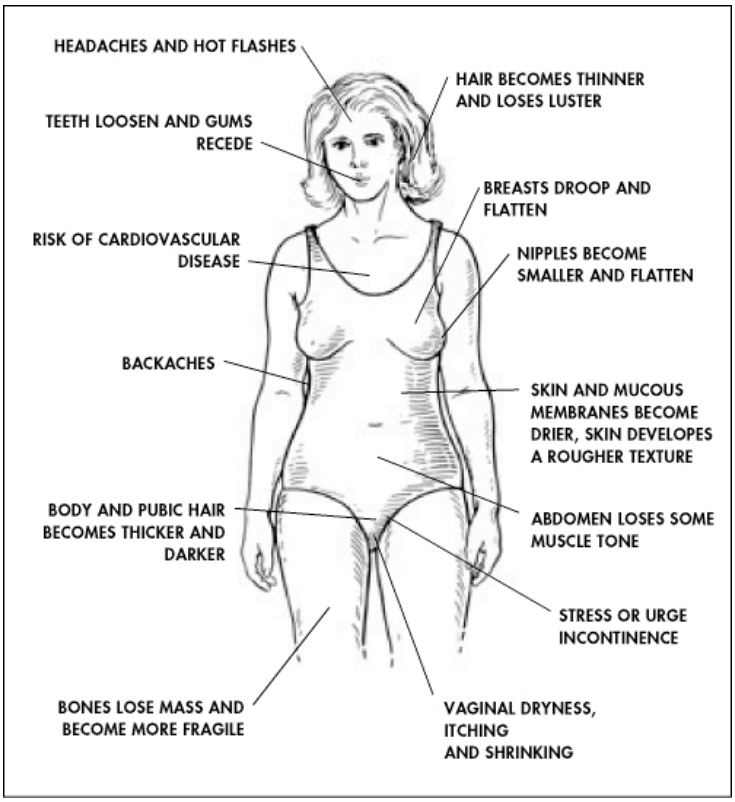

Figure 1. Source: Rayur.com[7]

Further complications

Women also show a rapid loss of bone density in the 10 years following the menopause; due to the decreased oestrogen causing increased skeletal resorption and decreased bone formation. This is why osteoporosis mainly affects postmenopausal women[8]. The risk of cardiovascular disease also increases, with significantly more cardiovascular events occurring in post-menopausal than pre-menopausal women[9].

A fall in progesterone seen in the menopause also results in an increased risk of endometrial cancer[10].

Investigations

The clearest way to diagnose the menopause is by the lack of menstrual periods for one year. Hormonal testing can also diagnose the menopause. Testing for FSH or oestrogen can be useful if it has been more than 3 months since the last menstrual periods; however the fluctuation of hormones on a daily basis can mean that a normal hormone level on one day cannot be trusted to be normal the next. This can be done via a blood test or urine test[10].

Management

The menopause is not a disease that needs treating – it is a normal life transition. However, replacing the diminished oestrogen using hormonal replacement therapy (HRT) is used to relieve the symptoms of menopause[2].

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HRT is available as tablets, skin patches, gels, nasal sprays or implants; all deliver a set dose of oestrogen to the patient. In women who have not had a hysterectomy, progesterone is also required and can be combined with the oestrogen. Another option is to use a cream or vaginal ring to relieve symptoms confined to the genital area[2].

Risks and benefits of HRT

A study by the Women's Health Initiative, United States, of 16,600, women have of whom took combined oestrogen and progestin HRT and the others, placebo, was performed in 2002[11]. The resulting risks and benefits are as follows:

Benefits

- Symptomatic improvement in most menopausal symptoms was seen in the majority of women. Oestrogen-deficiency symptoms responded well, with vaguer symptoms responding generally. Vaginal symptoms responded well to local oestrogen therapy[11].
- HRT provided protection against wrist, spine and hip fractures secondary to osteoporosis (24-33%) However, this is not an indication for HRT.
- Significant reduction in the risk of bowel -33%[11].

Risks

- A significant increase of invasive breast cancer +26%[11]
- Significant increase in the risk of ischaemic heart disease and stroke; 29% and 41% respectively[11]
- Increased risk of deep vein thrombosis and pulmonary embolism[11].
- An increased risk of dementia in patients taking HRT over the age of 65[11].

It is worth noting that the study was stopped early due to the increased risk of breast cancer, heart disease, stroke, deep vein thrombosis and pulmonary embolism[11].
Overall, the study concluded that HRT causes 100 extra harmful events per 10,000 women taking the regime over 5.2 years. When multiplying that result by years and millions of women, the number of adverse effects grows and grows[11].

The decision regarding use of HRT therefore relies on the patient's decision, the severity of their menopausal symptoms and personal risk of the previously stated conditions. Symptomatic treatment is the main indication for HRT's use[10].

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SERMs

Selective oestrogen receptor modulators (SERMs) such as raloxifene, could potentially provide the oestrogen benefits on bones and the cardiovascular system without affecting the uterus and breast receptors; this could have the potential to provide the therapy without the increase in breast cancer seen with HRT. Long-term outcome studies are still awaited[10].

Natural remedies:

Some women find that using naturally found oestrogens such as soya and fava beans help with their symptoms and this can certainly be advised.

Bone Protection:

The decrease in circulating oestrogen is well linked to the development of osteoporosis and certainly a factor that should be discussed with women. Although HRT is protective, in women who decline treatment with HRT, bone protection should nonetheless be advocated. This is usually in the form of calcium and vitamin D supplements, with addition of risedronate or alendronic acid if bone densitometry (DEXA) scanning reveals a bone density consistent with osteoporosis. It is worth noting that weight bearing exercise is one of the best known strategies for delaying the development of osteoporosis through bone remodeling and strengthening.

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References

1. Menstruation Info With Doc. What is Menopause? Available at: http://www.menstruation-info-with-doc.com/what-is-menopause.html
2. Herdmen, R. et al. 1992. The Menopause, Hormone Therapy and Women's Health. Diane Publishing Company. US.
3. NHS Choices. Menopause. Available at http://www.nhs.uk/conditions/Menopause/Pages/Introduction.aspx
4. Gracia, C.R. 2005. Defining Early Menopause Status: Creation of a New Definition to Identify the Early Changes of the Menopausal Transition. Th J of Th Nor Ame Men Soc
5. Kaufman, D. 1980. Cigarette Smoking and Age of Natural Menopause. American Journal of Public Health. **70**(4):420-422.
6. Moorman PG. et al. 2011. Effect of hysterectomy with ovarian preservation on ovarian function. Obstetrics & Gynecology.
7. Rayur. 2012. Menopausal Symptoms. Image available at: http://www.rayur.com/wp-content/uploads/2012/06/Menopausal_Symptoms.jpg
8. Lindsay, R. et al. 1996. The Menopause and Osteoporosis. Obstetrics and Gynaecology. **87**(2):1
9. Kannel, W.B. et al. 1976. Menopause and the Risk of Cardiovascular Disease: the Framingham study. **85**(4):447-452
10. Kumar P., Clark M. 2009. Kumar and Clark's Clinical Medicine. 7th edition. Edinburgh: Saunders Elsevier.
11. Bossouw, J.E. et al. 2002. Risk and Benefits of Oestrogen plus Progestin in Healthy Postmenopausal Women: Principal Results from the Women's Health Initiative Randomised Controlled Trial. The Journal of the American Medical Association. **288**(3):321-333.

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