The specialist authority for menopause & post reproductive health

Surgical menopause: a toolkit for healthcare professionals

Key points:

- Surgical menopause (bilateral oophorectomy) can be undertaken during a hysterectomy to treat various medical conditions
- Menopausal symptoms can be particularly severe due to the sudden loss of ovarian function in both pre/post-menopausal women, although current evidence characterising this is limited
- Vasomotor symptoms, sexual dysfunction, increased risk of cardiovascular and osteoporotic disease and loss of fertility are some common consequences
- Libido loss can be more prominent than in a natural menopause
- HRT (Hormone Replacement Therapy) plays a significant role in managing surgical menopause, especially in women <45 years old (provided there are no contraindications such as personal history of hormone dependant cancer)
- All women undergoing surgical menopause should have counselling and be provided with information about the hormonal consequences of surgery and the role of HRT, both before surgery and before leaving hospital, with clear communication to the primary care team.

What is surgical menopause?

Surgical menopause is the removal of both ovaries (bilateral oophorectomy) before a woman goes through biological menopause.[1]

Menopause is a physiological state in a woman's life that occurs at the end of her natural fertility, resulting in a loss of menstrual cycles. Around the ages of 45-55 years, the ovaries stop producing mature oocytes, which in turn affects the normal menstrual cycle, leading to reduced levels of estrogen and progesterone. Natural menopause is usually defined by at least 12 months of amenorrhea, along with various characteristics including vasomotor, psychological, and sexual symptoms[2]. The duration and intensity of symptoms can vary significantly between patients, hence a tailored, individualised approach is recommended. Menopause usually occurs naturally, however can be induced either chemically (using pharmacological treatments) or surgically for various reasons.

Indications for surgical menopause

Bilateral oophorectomy is usually performed due to either benign or malignant underlying pathology, often at the time of hysterectomy[1]. In particular, women who are carriers of the BRCA 1 or 2 mutations are at significantly higher lifetime risk of developing breast or ovarian cancer and may undergo bilateral salpingo-oophorectomy as risk reducing surgery.

In these women, use of HRT has not been shown to diminish the risk-reducing benefit of BSO on subsequent risk of breast cancer diagnosis, but the clinical data is very limited.[3,4] Currently, the recommendation is that after risk-reducing BSO, add-back HRT can be used until the age of an expected natural menopause. After this, non-hormonal alternatives can be used as first-line management for symptom control.

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Malignant	Benign
Ovarian carcinoma: primary tumours and in women with an underlying genetic predisposition (e.g., Lynch Syndrome, BRCA1/2 mutation)	• Heavy menstrual bleeding • Fibroids • Endometriosis • Chronic pelvic pain • Heavy menstrual bleeding • Recurrent ovarian cysts • Gender reassignment
Other gynaecological oncologic surgery including procedures for endometrial and cervical carcinoma. Some women may undergo ovarian preservation depending on the stage of disease and patient's age	Acute pathology (rarely resulting in bilateral oophorectomy): • Adnexal torsion leading to necrosis • Ectopic pregnancy

Common consequences of surgical menopause

Symptoms of surgical menopause are generally similar to that of a natural or chemically induced menopause, with a few established differences[5]. Due to the sudden loss of ovarian function in surgical menopause, pre-menopausal women might experience more severe consequences, including increased rates of overall mortality, coronary heart disease, stroke, cognitive impairment, osteoporosis and sexual dysfunction. There is evidence to suggest that the cardiovascular risk of surgical menopause may be greater than a premature natural menopause. Some studies suggest that post-menopausal ovaries play a role in androgen production, theorising that a surgical menopause can impact libido more significantly compared to natural menopause[6]. There is limited high quality large-scale data to quantify and assess the increased risk seen in surgical menopause, in both pre/post-menopausal women. However, current evidence strongly advocates for the use of HRT to improve outcomes in women undergoing surgical menopause[7].

Potential benefits	Potential risks
• Reduced risk of ovarian cancer • Reduced risk of breast and ovarian cancer in susceptible women such as BRCA 1/2 carriers • Improvement in symptoms associated with chronic conditions such as endometriosis or chronic pelvic pain	• Vasomotor symptoms: night sweats, hot flushes • Loss of fertility • Increased risk of cardiovascular disease • Loss of bone density and increased risk of osteoporosis and fractures • Sexual dysfunction including low libido, vaginal dryness and urogenital atrophy • Recurrent urinary tract infections • Change in mood and cognition including an increased risk of depression, memory loss and anxiety

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Management of surgical menopause

- Use a holistic approach when counselling women, including lifestyle measures.
- Current guidelines state all women <45 years old undergoing surgical menopause should be offered HRT at least until age 51 (average age of menopause), unless there are contraindications to treatment such as a personal history of hormone dependant cancer.
- For women who are at high risk of ovarian cancer and have had risk reducing surgery AND a personal history of breast cancer there should be a discussion with their breast cancer care team prior to commencing HRT[8].
- Once the average age of menopause has been reached, an informed decision should be made around the ongoing use of HRT depending on the presence or not of menopausal symptoms.
- Estrogen-only HRT can be used in women without a uterus (hysterectomy). Women retaining their uterus MUST receive combined estrogen and progestogen treatments to reduce the risk of endometrial carcinoma.
- Women who have undergone subtotal hysterectomy may have some remaining endometrial tissue which could have a risk of hyperplasia/malignancy with estrogen only HRT. These women should have an initial progesterone challenge (two cycles of sequential HRT should suffice) and if no bleeding occurs or pathology reports confirm no remaining endometrium then they can be managed on estrogen only HRT. Otherwise, long term they will require continuous combined HRT.
- Further treatment or treatment in post-menopausal women should be reviewed based on symptoms.

Women can be offered treatment by menopause specialists if required, especially younger women who require long-term (>5 years) symptom management[9].

Lifestyle interventions

- Diet, reducing caffeine and alcohol
- Exercise
- Smoking cessation
- Blood pressure management
- Optimal glucose and lipid control
- Psychological support including Cognitive Behavioural therapy

Pharmacological interventions

- HRT (either estrogen only or combined estrogen/ progestogen preparations): In BRCA carriers swap to non-hormonal at age 50/51yrs
- Including Tibolone (licensed for endometriosis)
- Topical vaginal estrogen tablet/pessary/cream/ring, vaginal DHEA
- Testosterone gel or implant
- Selective Serotonin Reuptake inhibitors (SSRIs), Clonidine or Gabapentin
- NK3 antagonists (Fezolinetant)
- Alternative therapies (e.g. Red Clover, Black Cohosh)

Hormone Replacement Therapy (HRT)

Benefits:

1. Vasomotor symptom relief: HRT reduces vasomotor symptoms in most women, although symptoms may persist in younger women and require doses at the higher end of licensed doses of estrogen. Discontinuation of HRT can result in a recurrence of vasomotor symptoms.
2. Libido: Tibolone can be helpful for women with low libido due to some androgenic activity. It may also be used in women with endometriosis who have had a hysterectomy and bilateral oophorectomy but may have some endometriosis deposits remaining[9]. Topical vaginal estrogen, dehydroepiandrosterone (DHEA) and supplemental testosterone can be used to treat vaginal dryness/ atrophy and reduced libido respectively if necessary[10].
3. Bone: HRT reduces the risk of osteoporotic fragility fractures and might improve muscle mass and strength[11,12].
4. Cardiovascular disease: Hormone replacement is likely to lower the long-term risk of cardiovascular disease associated with surgical menopause.
5. Dementia: HRT is likely to improve cognitive function and lower the risk of dementia in younger women who have had a surgical menopausal[14].

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Risk associated with HRT include[2]:

1. Venous thromboembolism: risk is increased with oral HRT but not increased from baseline with transdermal preparations. Women with an increased baseline risk (including BMI >30kg/m^2) should be offered transdermal HRT.
2. A perceived risk of HRT is breast cancer. However, data suggest that women <50 years on HRT do not have an increased risk of breast cancer[16]. A meta-analysis published in *The Lancet* suggested that women <50 years who were postmenopausal and on HRT had an increased risk of breast cancer. The control group, of age-matched postmenopausal women, however, was inappropriate as an early menopause reduces breast cancer risk. The population for comparison should have consisted of age-matched normally cycling women[17]. The consensus statement issued from the BMS states that women aged <50 years using HRT do not have an increased risk of breast cancer.

For women undergoing surgical menopause due to endometriosis[9]:

1. Continued combined estrogen/progestogen HRT is advised following hysterectomy in women who have widespread endometriosis to reduce the risk of stimulation and malignant transformation of endometrial deposits.
2. Changing to estrogen only at a later date due to a better safety profile can be considered but must be balanced with the risk of reactivating endometriosis and potential malignant transformation of endometrial deposits.
3. HRT should be reviewed and suspended if symptoms recur.

In summary, surgical menopause can have significant consequences both short term and long term. Clear information and advice should be provided both before and after surgery to both the patient and her primary care team.

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