What is the definition of menopause?

A. FSH > 10
B. FSH > 20
C. No menses for > 6 months
D. No menses for > 12 months
What happens to FSH, LH after menopause?
A. Both down  
B. Both up  
C. FSH up, LH down  
D. FSH down, LH up

What is the average age of menopause in the US?
A. 48  
B. 51  
C. 54  
D. 56

Smoking leads to
A. Late menopause
B. Earlier menopause
C. No change in menopause

Which is NOT a typical menopausal symptom?
A. Hot flashes
B. Weight loss
C. Vaginal dryness
D. Joint aches
Vasomotor symptoms

- Hypothalamus
- Estrogen fluctuations
- Norepinephrine
- Serotonin

Which is NOT a risk factor for vasomotor symptoms?

A. Smoking
B. Asian race
C. Obesity
D. Low socioeconomic status
What is the definition of osteoporosis?

A. Z score less than or equal to -2
B. Z score less than or equal to -2.5
C. T score less than or equal to -2
D. T score less than or equal to -2.5

What is the “T” score showing?

A. Compared to women the same age
B. Compared to women age 25-35
C. Compared to average premenopausal women
D. Compared to average postmenopausal women

Start screening age at age 65, earlier if there are risk factors

Mortality associated with hip fracture?

A. 5%
B. 10%
C. 30%
D. 50%
### Major Risk Factors
- Age >65 years
- Vertebral compression fracture
- Fragility fracture after age 40
- Family history of osteoporotic fracture
- Systemic glucocorticoid therapy for >3 months
- Malabsorption syndrome
- Primary hyperparathyroidism
- Propensity to fall
- Osteopenia apparent on radiography
- Hypogonadism
- Early menopause (before age 45)

### Minor Risk Factors
- Rheumatoid arthritis
- History of clinical hyperthyroidism
- Chronic anticonvulsant therapy
- Smoker
- Excessive alcohol intake
- Excessive caffeine intake
- Weight <57 kg
- >10 percent weight loss at age 25
- Chronic heparin therapy

---

**What is the leading cause of death in postmenopausal women?**

A. Breast cancer  
B. Lung cancer  
C. Cardiovascular disease  
D. Stroke  

---

**Vaginal changes after menopause EXCEPT?**

A. Decreased rugae  
B. Decreased pH  
C. Decreased elasticity  
D. Decreased lactobacilli
Photomicrographs of cervical epithelium as some of the evaluation tools. This index, sometimes referred to as the epithelial status index, is based on a count of parabasal, intermediate, and superficial (P:I:S) cells. Generally, a predominance of superficial or superficial and intermediate cells is seen in reproductive-aged women. C. A predominance of intermediate cells is seen in the luteal phase, in pregnancy, with amenorrhea, and in newborns, premenarchal girls, and women in early menopausal transition. D. A predominance of parabasal cells is seen in menopausal patients with atrophy. (Used with permission from Dr. Raheela Ashfaq.)

Hormone Replacement Therapy

Based on the WHI study, HRT should be prescribed for ...?
A. All postmenopausal women due to cardioprotective effects
B. Only for postmenopausal women at high risk of heart attack
C. For any woman who requests it, since HRT is low risk
D. Select women, but CAUTION CAUTION CAUTION
Women’s Health Initiative

**INCREASED RISKS**
- Heart disease ^
- Stroke *
- VTE *
- Breast cancer

^ in older patients
*estrogen only group

**DECREASED RISKS**
- Fracture
- Colon cancer

HRT is indicated for

A. Women <55 for cardioprotection
B. For intolerable vasomotor symptoms
C. In women with significant family history of colon cancer
D. Premenopausal women for fracture prevention

HRT Indications

- Vasomotor symptoms
- Vaginal atrophy (when LOCAL estrogen fails)
- Osteoporosis (alternatives preferred ie bisphosphonates)
Lowest effective dose for shortest time!

Caution, caution, caution!

Estrogen should not be used in women with any of the following conditions:
- Unexplained uterine bleeding
- Known or suspected endometrial hyperplasia
- Known or suspected endogenous estrogen excess
- Known or suspected endogenous estrogen excess
- Active or prior venous thromboembolism
- Known or suspected breast cancer
- Known or suspected estrogen-dependent neoplasia
- Active or recent arterial thromboembolic disease (e.g., stroke or myocardial infarction)
- Liver dysfunction or disease
- Known hypersensitivity to the ingredients of the estrogen preparation
- Known or suspected pregnancy
- Known or suspected pregnancy
- Dementia
- Gallbladder disease
- Hypertriglyceridemia
- Prior cholestatic jaundice
- Prior endocarditis
- Prior myocardial infarction
- Severe hypocalcemia
- Prior endometriosis
- Hepatic hemangiomas

Data from Food and Drug Administration. Noncontraceptive estrogen drug products for the treatment of vasomotor symptoms and vulvar and vaginal atrophy symptoms—recommended prescribing information for healthcare providers and patient labeling, 2005.

Estrogen

- Oral (various kinds, Premarin)
- Transdermal (Climara, Vivelle-Dot)
- Ring (FemRing)
Estrogen

If there is a uterus, need progesterone*
- Oral (cyclic or continuous)
- Transdermal
- Progesterone IUD

* Can use bazedoxifene instead of progesterone (Duavee)

Risks of estrogen-only HRT include?
(assuming patient does not have a uterus)
A. Heart attack
B. Stroke
C. Breast cancer
D. Colon cancer
Women’s Health Initiative

**INCREASED RISKS**
- Heart disease
- Stroke *
- VTE *
- Breast cancer

**DECREASED RISKS**
- Fracture
- Colon cancer

^ in older patients
*estrogen only group

---

Women’s Health Initiative Risks

**Estrogen and Progesterone**
- Heart disease
- Stroke
- VTE
- Breast cancer

**Estrogen ONLY**
- Stroke
- VTE

---

If there is a uterus, need progesterone*

- Oral
  - Medroxyprogesterone
  - Oral micronized progesterone
- Transdermal
  - Combined patches
- Progesterone IUD

* Can use bazedoxifene instead of progesterone (Duavee)
What if there is bleeding with HRT?

- If bleeding BEFORE HRT, get US / biopsy
- First 6 months, can watch (may have cyclic bleeding)
- After 6 months, US / biopsy
- When in doubt, BIOPSY

Which nonhormonal treatment is FDA-approved for menopausal vasomotor symptoms?

A. Venlafaxine
B. Paroxetine
C. Gabapentin
D. Testosterone

Nonhormonal treatments

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<tr>
<th>Treatment</th>
<th>Available</th>
<th>FDA Approved</th>
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<tr>
<td>Serotonin reuptake</td>
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<tr>
<td>Stahel–gottlob block</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

ACOG bulletin
### Vaginal atrophy

- **LOCAL estrogen** (minimal risks)
  - Cream
  - Vaginal tablet
  - Vaginal ring

- **Other**
  - Ospemifene (FDA approved)
  - Raloxifene and tamoxifen
  - Lubricants, moisturizers, vibrators, dilators

When vaginal atrophy alone is the complaint, try LOCAL first before resorting to HRT.

### Key Points

- Treat osteoporosis (T score less than or equal to -2.5) because hip fractures have high mortality
- Use HRT with caution due to risks
- Estrogen and progesterone → CHD, stroke, VTE, breast cancer
- Estrogen alone → stroke, VTE
- If patient has a uterus, need progesterone!
- Endometrial biopsy when in doubt
- First, try local estrogen for vaginal atrophy