**estrogens, conjugated**
C.E.S.™, Congest™, Premarin, Premarin Intravenous

**Pharmacologic class:** Estrogen  
**Therapeutic class:** Replacement hormone, antineoplastic, antosteoporotic  
**Pregnancy risk category X**

**Action**
Bind to nuclear receptors in responsive tissues (such as female genital organs, breasts, and pituitary gland), enhancing DNA, RNA, and protein synthesis. In androgen-dependent prostate cancer, estrogens compete for androgen receptor sites, inhibiting androgens. Also decreases pituitary release of follicle-stimulating hormone and luteinizing hormone.

**Availability**
*Powder for injection:* 25 mg/5 ml  
*Tablets:* 0.3 mg, 0.625 mg, 0.9 mg, 1.25 mg, 2.5 mg  
*Vaginal cream:* 0.625 mg/g

**Indications and dosages**
- **Ovariectomy, primary ovarian failure**  
  **Adults:** 1.25 mg P.O. daily or in cycles of 3 weeks on and 1 week off  
- **Osteoporosis and menopausal symptoms**  
  **Adults:** 0.3 to 1.25 mg P.O. daily or in cycles of 3 weeks on and 1 week off  
  **Female hypogonadism**  
  **Adults:** 0.3 to 0.625 mg P.O. daily, given cyclically 3 weeks on and 1 week off  
- **Inoperable breast cancer in men and postmenopausal women**  
  **Adults:** 10 mg P.O. t.i.d. for 3 months or more  
  **Inoperable prostate carcinoma**  
  **Adults:** 1.25 to 2.5 mg P.O. t.i.d.

- **Uterine bleeding caused by hormonal imbalance**  
  **Adults:** 25 mg I.M. or I.V., repeated in 6 to 12 hours if necessary  
- **Atrophic vaginitis**  
  **Adults:** 0.5 to 2 g (vaginal cream) intravaginally daily in cycles of 3 weeks on and 1 week off

**Contraindications**
- Hypersensitivity to drug  
- Thromboembolic disease (current or previous)  
- Undiagnosed vaginal bleeding  
- Breast or reproductive system cancer (except in metastatic disease)  
- Estrogen-dependent neoplasms  
- Pregnancy

**Administration**
- Know that drug is compatible with dextrose 5% in water and normal saline solution.  
- Give oral doses in cycles of 3 weeks on, 1 week off.

<table>
<thead>
<tr>
<th>Route</th>
<th>Onset</th>
<th>Peak</th>
<th>Duration</th>
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<tbody>
<tr>
<td>P.O., I.M.</td>
<td>Unknown</td>
<td>Unknown</td>
<td>6-12 hr</td>
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<tr>
<td>I.V.</td>
<td>Rapid</td>
<td>Unknown</td>
<td>6-12 hr</td>
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<tr>
<td>Intravaginal</td>
<td>Unknown</td>
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**Adverse reactions**
- **CNS:** headache, dizziness, lethargy, depression, asthenia, paresthesia, syncope, cerebrovascular accident (CVA), seizures  
- **CV:** hypertension, chest pain, myocardial infarction (MI), thromboembolism  
- **EENT:** contact lens intolerance, worsening of myopia or astigmatism, otitis media, sinusitis, rhinitis, pharyngitis  
- **GI:** nausea, vomiting, diarrhea, abdominal cramps, bloating, enlarged abdomen, dyspepsia, flatulence, gastritis, gastroenteritis, hemorrhoids, colitis, gallbladder disease, cholestatic jaundice, anorexia, pancreatitis

*Canada*  
*Clinical alert*  
Reactions in **bold** are life-threatening
GU: urinary incontinence, dysuria, amenorrhea, dysmenorrhea, endometrial hyperplasia, vaginal candidiasis, urinary tract infection, leukorrhea, vaginal hemorrhage, genital eruptions, gynecomastia, breast tenderness, breast enlargement or secretion, reduced libido, impotence, testicular atrophy, increased risk of breast cancer, endometrial cancer, hemolytic uremic syndrome

Hepatic: hepatic adenoma

Metabolic: hyperglycemia, hypercalcemia, sodium and water retention, reduced carbohydrate tolerance

Musculoskeletal: leg cramps, back pain, skeletal pain

Respiratory: upper respiratory tract infection, bronchitis, pulmonary embolism

Skin: acne, oily skin, changes in pigmentation, urticaria, pruritus, erythema nodosum or multiforme, hemorrhagic eruption, skin hypertrophy, hirsutism, alopecia

Other: edema, weight changes, increased appetite, hypersensitivity reaction

Interactions

Drug-drug. Corticosteroids: enhanced corticosteroid effects

CYP450 inducers (such as barbiturates, rifampin): decreased estrogen efficacy

Hypoglycemics, warfarin: altered requirement for these drugs

Phenytoin: loss of seizure control

Tamoxifen: interference with tamoxifen effects

Tricyclic antidepressants: reduced antidepressant effects

Drug-diagnostic tests. Antithrombin III, folate, low-density lipoproteins, pyridoxine, total cholesterol, urine pregnanediol: decreased values

Cortisol; factors VII, VIII, IX, and X; glucose; high-density lipoproteins; phospholipids; prolactin; prothrombin; sodium; triglycerides: increased values

Metyrapone test: false decrease

Thyroid function tests: false interpretation

Drug-food. Caffeine: increased caffeine blood level

Drug-herb. Black cohosh: increased risk of adverse reactions

Red clover: interference with estrogen effects

Saw palmetto: antiestrogenic effects

St. John’s wort: decreased drug blood level and effects

Drug-behaviors. Smoking: increased risk of adverse cardiovascular reactions

Precautions

Use cautiously in:

- cardiovascular disease, severe hepatic or renal disease, asthma, bone disease, migraine, seizures, breast disease
- family history of breast or genital tract cancer
- breastfeeding.

Patient monitoring

- Monitor liver function test results and assess abdomen for liver enlargement.
- Evaluate patient for breast tenderness and swelling; as needed, administer analgesics and apply cool compresses.
- Monitor fluid intake and output; weigh patient daily.

Know that drug increases risk of thromboembolism, CVA, and MI.

- Check serum phosphatase levels in patients with prostate cancer.
- Monitor calcium, glucose, and folic acid levels and liver function test results.
- Evaluate bone density annually.

Patient teaching

- Teach patient to recognize and report signs and symptoms of thrombophlebitis and thromboembolism.
- Tell patient to report breakthrough vaginal bleeding.
- Recommend that patient have routine breast examinations.
● Mention that contact lens intolerance may occur; instruct patient to report vision changes.
● As appropriate, review all other significant and life-threatening adverse reactions and interactions, especially those related to the drugs, tests, foods, herbs, and behaviors mentioned above.