

# Many Diabetes Patients Skip Annual Mammogram

BY KATE JOHNSON  
Montreal Bureau

QUEBEC CITY — One-third of menopausal women with diabetes do not receive annual screening mammography, according to results of a large study.

“Even though they had more frequent visits to physicians, compared with healthy women, women with diabetes have a 32% lower likelihood of getting mammograms,” said Lorraine Lipscombe, M.D., a

research fellow at the Institute for Clinical Evaluative Sciences, Toronto.

The retrospective study included approximately 69,000 women with diabetes, aged between 50 and 69 years, and compared them with about 663,000 controls of the same age, she reported at the joint annual meeting of the Canadian Diabetes Association and the Canadian Society of Endocrinology and Metabolism.

The women’s medical records were taken from a provincial database as well as the

Ontario Diabetes Database and tracked for 2 years, starting from their first physician visit to determine whether they had a screening mammogram, said Dr. Lipscombe, also of Sunnybrook and Women’s College Health Sciences Centre, Toronto.

Compared with healthy women, those with diabetes had more physician visits per year (nine versus seven) and were more likely to see a specialist (29% versus 11%). However, significantly fewer diabetic

women had at least one screening mammogram during the study period (38% vs. 47%, odds ratio 0.68).

This finding is of particular concern in light of evidence that suggests there may be an increased risk of breast cancer in women with diabetes, Dr. Lipscombe told this newspaper.

The mechanism for this increased risk may be a higher rate of obesity in this population, which can predispose women to breast cancer. It may also be related to insulin exposure, she said.

“Not just treatment with insulin, but possibly also the fact that there is a state of insulin resistance for many years before the onset of diabetes. This means that the body makes more insulin than normal, and because insulin is a growth factor it can increase the risk of breast cancer,” she said.

The study results suggest that primary preventive care may be suboptimal in diabetes patients, and physicians should consider ways to ensure that patients get regular mammography reminders, according to Dr. Lipscombe. ■

## Anastrozole Deemed Cost-Effective

SAN ANTONIO — Anastrozole is a cost-effective alternative to generic tamoxifen for primary adjuvant therapy in postmenopausal women with early-stage breast cancer, according to a new economic analysis.

Based upon the 68-month efficacy and safety data from the Arimidex, Tamoxifen, Alone or Together (ATAC) trial—see accompanying story—5 years of adjuvant anastrozole cost an estimated \$23,740 per quality-adjusted life-year gained beyond that achieved with 5 years of tamoxifen, Gershon Y. Locker, M.D., reported at a breast cancer symposium sponsored by the Cancer Therapy and Research Center.

That’s well within the bounds of what’s considered reasonably cost-effective and reimbursable by U.S. health care standards, which variously define the threshold for cost-effectiveness as \$50,000-\$100,000 per quality-adjusted life-year, noted Dr. Locker of Evanston (Ill.) Northwestern Healthcare and Northwestern University.

The estimated incremental cost-effectiveness for anastrozole compared to tamoxifen was \$29,132 per life-year gained without considering quality of life, the oncologist added.

His analysis used published (2004 Drug Topics Red Book) wholesale acquisition costs of \$6.56/day for anastrozole (Arimidex) and \$1.33/day for generic tamoxifen. The study factored in the direct medical costs of the increased rates of recurrent breast cancer, stroke, venous thromboembolism, and other adverse events associated with tamoxifen therapy, as well as the greater fracture risk entailed in anastrozole therapy.

—Bruce Jancin



Brief summary of prescribing information.

**ESTROGENS HAVE BEEN REPORTED TO INCREASE THE RISK OF ENDOMETRIAL CARCINOMA.**  
Three independent, case controlled studies have reported an increased risk of endometrial cancer in postmenopausal women exposed to exogenous estrogens for more than one year. This risk was independent of the other known risk factors for endometrial cancer. These studies are further supported by the finding that incident rates of endometrial cancer have increased sharply since 1960 in eight different areas of the United States with population-based cancer-reporting systems, an increase which may be related to the rapidly expanding use of estrogens during the last decade.  
The three case-controlled studies reported that the risk of endometrial cancer in estrogen users was about 4.5 to 13.0 times greater than in nonusers. The risk appears to depend on the duration of treatment and on estrogen dose. In view of these findings, when estrogens are used for the treatment of menopausal symptoms, the lowest dose that will control symptoms should be utilized and medication should be discontinued as soon as possible. When prolonged treatment is medically indicated, the patient should be reassessed, on at least a semi-annual basis, for the need for continued therapy. Close clinical surveillance of all women taking estrogens is important. In all cases of undiagnosed persistent or recurring abnormal vaginal bleeding, adequate diagnostic measures should be undertaken to rule out malignancy.  
There is no evidence at present that “natural” estrogens are more or less hazardous than “synthetic” estrogens at equi-estrogenic doses.

**INDICATIONS AND USAGE** VAGIFEM is indicated for the treatment of atrophic vaginitis.

**CONTRAINDICATIONS**

The use of VAGIFEM is contraindicated in women who exhibit one or more of the following:

1. Known or suspected breast carcinoma.
2. Known or suspected estrogen-dependent neoplasia; e.g., endometrial carcinoma.
3. Abnormal genital bleeding of unknown etiology.
4. Known or suspected pregnancy (see PRECAUTIONS).
5. Porphyria.
6. Hypersensitivity to any VAGIFEM constituents.
7. Active thrombophlebitis or thromboembolic disorders.
8. A past history of thrombophlebitis, thrombosis, or thromboembolic disorders associated with previous estrogen use (except when used in treatment of breast malignancy).

**WARNINGS**

1. **Induction of malignant neoplasms.** Long-term, continuous administration of natural and synthetic estrogens in certain animal species increases the frequency of carcinomas of the breast, cervix, vagina, and liver. There are now reports that estrogens increase the risk of carcinoma of the endometrium in humans (see Boxed Warning). At the present time there is no satisfactory evidence that estrogens given to postmenopausal women increase the risk of cancer of the breast, although a recent long-term follow-up of a single physician’s practice has raised this possibility. Because of the animal data, there is a need for caution in prescribing estrogens for women with a strong family history of breast cancer or who have breast nodules, fibrocystic disease, or abnormal mammograms.
2. **Gallbladder disease.** A recent study has reported a 2- to 3-fold increase in the risk of surgically confirmed gallbladder disease in women receiving postmenopausal estrogens, similar to the 2-fold increase previously noted in users of oral contraceptives.
3. **Effects similar to those caused by estrogen-progestin oral contraceptives.** There are several serious adverse effects of oral contraceptives, most of which have not, up to now, been documented as consequences of postmenopausal estrogen therapy. This may reflect the comparatively low doses of estrogens used in postmenopausal women. It would be expected that the larger doses of estrogen used in breast cancer or breast cancer are more likely to result in these adverse effects, and, in fact, it has been shown that there is an increased risk of thrombosis in men receiving estrogens for prostatic cancer.
4. **Thromboembolic disease.** It is now well established that users of oral contraceptives have an increased risk of various thromboembolic diseases, such as thrombophlebitis, pulmonary embolism, stroke, and myocardial infarction. Cases of retinal thrombosis, mesenteric thrombosis, and optic neuritis have been reported in oral contraceptive users. There is evidence that the risk of several of these adverse reactions is related to the dose of the drug. An increased risk of post-surgery thromboembolic complications has also been reported in users of oral contraceptives. If feasible, estrogen should be discontinued at least 4 weeks before surgery of the type associated with an increased risk of thromboembolism, or during periods of prolonged immobilization. While an increased rate of thromboembolism and thrombotic disease in postmenopausal users of estrogens has not been found, this does not rule out the possibility that such an increase may be present, or that subgroups of women who have underlying risk factors, or who are receiving large doses of estrogens, may have increased risk. Therefore, estrogens should not be used (except in treatment of malignancy) in a person with a history of such disorders in association with estrogen use. They should be used with caution in patients with cerebral vascular or coronary artery disease and only for those in whom estrogens are clearly needed.  
Large doses of estrogens (5 mg conjugated estrogens per day), comparable to those used to treat cancer of the prostate and breast, have been shown in a large prospective clinical trial in men, to increase the risk of nonfatal myocardial infarction, pulmonary embolism, and thrombophlebitis. When estrogen doses of this size are used, any of the thromboembolic and thrombotic adverse effects associated with oral contraceptive use should be considered a clear risk.
5. **Hepatic adenoma.** Benign hepatic adenomas appear to be associated with the oral contraceptives. Although benign, and rare, these may rupture and may cause death through intra-abdominal hemorrhage. Such lesions have not yet been reported in association with other estrogen or progestogen preparations but should be considered in estrogen users having abdominal pain and tenderness, abdominal mass, or hypovolemic shock. Hepatocellular carcinoma has also been reported in women taking estrogen-containing oral contraceptives. The relationship of this malignancy to these drugs is not known at this time.
6. **Elevated blood pressure.** Women using oral contraceptives sometimes experience increased blood pressure which, most cases, returns to normal on discontinuing the drug. There is now a report that this may occur with the use of estrogens in the menopause and blood pressure should be monitored with estrogen use, especially if high doses are used.
7. **Glucose tolerance.** A worsening of glucose tolerance has been observed in a significant percentage of patients on estrogen-containing oral contraceptives. For this reason, diabetic patients should be carefully observed while using estrogens.
8. **Hypocalcemia.** Administration of estrogens may lead to severe hypercalcemia in patients with breast cancer and bone metastases. If this occurs, the drug should be stopped and appropriate measures taken to reduce the serum calcium level.
9. **Rare Event:** Trauma induced by the VAGIFEM applicator may occur, especially in patients with severely atrophic vaginal mucosa.

**PRECAUTIONS**

1. **General Precautions**  
A complete medical and family history should be taken prior to the initiation of any estrogen therapy. The pretreatment and periodic physical examinations should include special references to blood pressure, breast, abdomen, and pelvic organs, and should include a Papanicolaou smear. As a general rule, estrogens should not be prescribed for longer than one year without another physical exam being performed.
2. **Fluid retention**—Because estrogens may cause some degree of fluid retention, conditions which might be influenced by this factor, such as asthma, epilepsy, migraine, and cardiac and renal dysfunction, require careful observation.
3. **Familial Hyperlipoproteinemia**—Estrogen therapy may be associated with massive elevations of plasma triglycerides leading to pancreatitis and other complications in patients with familial defects of lipoprotein metabolism.
4. Certain patients may develop undesirable manifestations of excessive estrogenic stimulation, such as abnormal or excessive uterine bleeding, mastodynia, etc.
5. Prolonged administration of unopposed estrogen therapy has been reported to increase the risk of endometrial hyperplasia in some patients.
6. Preexisting uterine leiomyomata may increase in size during estrogen use.
7. The pathologist should be advised of estrogen therapy when relevant specimens are submitted.

8. Patients with a history of jaundice during pregnancy have an increased risk of recurrence of jaundice while receiving estrogen-containing oral contraceptive therapy. If jaundice develops in any patient receiving estrogen, the medication should be discontinued while the cause is investigated.
  9. Estrogens may be poorly metabolized in patients with impaired liver function and should be administered with caution in such patients.
  10. Because estrogens influence the metabolism of calcium and phosphorus, they should be used with caution in patients with metabolic bone diseases that are associated with hypercalcemia or in patients with renal insufficiency.
  11. Because of the effects of estrogens on epiphyseal closure, they should be used judiciously in young patients in whom bone growth is not yet complete.
  12. Insertion of the VAGIFEM applicator—Patients with severely atrophic vaginal mucosa should be instructed to exercise care during insertion of the applicator. After gynecological surgery, any vaginal applicator should be used with caution and only if clearly indicated.
  13. **Vaginal infection**—Vaginal infection is generally more common in postmenopausal women due to the lack of normal flora seen in fertile women, especially lactobacilli; hence the subsequent higher pH. Vaginal infections should be treated with appropriate antimicrobial therapy before initiation of VAGIFEM therapy.
- B. Information for the Patient**  
See full prescribing information, INFORMATION FOR PATIENTS.
- C. Drug/Laboratory Test Interactions**  
Certain endocrine and liver function tests may be affected by estrogen-containing oral contraceptives. The following similar changes may be expected with larger doses of estrogens:  
a. Increased prothrombin and factors VII, VIII, IX, and X, decreased antithrombin III; increased norepinephrine induced platelet aggregability.  
b. Increased thyroid binding globulin (TBG) leading to increased circulating total thyroid hormone, as measured by T<sub>4</sub> by column or T<sub>3</sub> by radioimmunoassay. Free T<sub>4</sub>, resin uptake is decreased, reflecting the elevated TBG. Free T<sub>3</sub> concentration is unaltered.  
c. Impaired glucose tolerance.  
d. Reduced response to meprobamate test.  
e. Reduced serum folate concentration.  
f. Increased serum triglyceride and phospholipid concentration.
- D. Carcinogenesis, Mutagenesis and Impairment of Fertility**  
Long term continuous administration of natural and synthetic estrogens in certain animal species increases the frequency of carcinomas of the breast, uterus, vagina and liver (see CONTRAINDICATIONS AND WARNINGS).
- E. Pregnancy Category X**  
Estrogens are not indicated for use during pregnancy or the immediate postpartum period. Estrogens are ineffective for the prevention or treatment of threatened or habitual abortion. Treatment with diethylstilbestrol (DES) during pregnancy has been associated with an increased risk of congenital defects and cancer in the reproductive organs of the fetus, and possibly other birth defects. The use of DES during pregnancy has also been associated with a subsequent increased risk of breast cancer in the mothers.
- F. Nursing Mothers**  
Estrogens are not indicated for administration of any drug to nursing mothers should be done only when clearly necessary since many drugs are excreted in human milk. In addition, estrogen administration to nursing mothers has been shown to decrease the quantity and quality of the milk. Estrogens are not indicated for the prevention of postpartum breast engorgement.
- G. Pediatric Use**  
Safety and effectiveness in pediatric patients have not been established.
- H. Geriatric Use**  
Clinical studies of VAGIFEM did not include sufficient numbers of subjects aged 65 and over to determine whether they respond differently from younger subjects. Other reported clinical experience has not identified differences in responses between the elderly and younger patients. In general, dose selection for an elderly patient should be cautious, usually starting at the low end of the dosing range, reflecting the greater frequency of decreased hepatic, renal, or cardiac function, and of concomitant disease or other drug therapy.

**ADVERSE EVENTS** Generally have been mild: vaginal spotting, vaginal discharge, allergic reaction and skin rash. Adverse events with an incidence of 5% or greater are reported for two comparative trials. Data for patients receiving either VAGIFEM or placebo in the double blind study and VAGIFEM in the open label comparator study are listed in the following 2 tables, respectively.

ADVERSE EVENT	VAGIFEM % (n=91)	Placebo % (n=47)
Headache	9	6
Abdominal Pain	7	4
Upper Respiratory Tract Infection	5	4
Genital Moniliasis	5	2
Back Pain	7	6

ADVERSE EVENT	VAGIFEM % (n=80)
Genital Pruritus	6
Headache	11
Upper Respiratory Tract Infection	10

Other adverse events that occurred in 3-5% of VAGIFEM subjects included: allergy, bronchitis, dyspepsia, haematuria, hot flashes, insomnia, pain, sinusitis, vaginal discomfort, vaginitis. A causal relationship to VAGIFEM has not been established.

**OVERDOSAGE**

Numerous reports of ingestion of large doses of estrogen containing oral contraceptives by young children indicate that acute serious ill effects do not occur. Overdose with estrogens may cause nausea, and withdrawal bleeding may occur in females.

**DOSE AND ADMINISTRATION**

VAGIFEM is gently inserted into the vagina as far as it can comfortably go without force, using the supplied applicator.  
• Initial dose: One (1) VAGIFEM tablet, inserted vaginally, once daily for two (2) weeks. It is advisable to have the patient administer treatment at the same time each day.  
• Maintenance dose: One (1) VAGIFEM tablet, inserted vaginally, twice weekly.  
The need to continue therapy should be assessed by the physician with the patient. Attempts to discontinue or taper medication should be made at three to six month intervals.

**HOW SUPPLIED**

Each VAGIFEM® (estradiol vaginal tablets), 25 µg is contained in a disposable, single-use applicator, packaged in a blister pack. Cartons contain 8 or 18 applicators with inset tablets.  
8 Applicators NDC 0169-5173-03  
18 Applicators NDC 0169-5173-04  
Store at 25°C (77°F); excursions permitted to 15°C-30°C (59°F-86°F) [see USP Controlled Room Temperature].

**Rx only**

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**Reference:** 1. Rioxon JE, Devlin MC, Gelfand MM, Steinberg WM, Hepburn DS. 17β-Estradiol vaginal tablet versus conjugated equine estrogen vaginal cream to relieve menopausal atrophic vaginitis. *Menopause*. 2000;7:156-161.