Anastrozole (Arimidex®)

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Drug Name: Anastrozole is marketed by the trade name Arimidex® by AstraZeneca Pharmaceuticals LP (Wilmington, DE).

Classification: Aromatase inhibitor

Action: Aromatase is found in peripheral tissues, such as adipose tissue. Anastrozole inhibits aromatase from converting estrone, which is generated by the adrenal androgens (androstenedione and testosterone), to estradiol. Aromatase also is contained in many breast cancers, but the significance of tumor-generated estrogens is unknown.

Indications: Anastrozole is approved for three indications in the treatment of breast cancer.

- Adjuvant treatment in postmenopausal women with hormone receptor positive early breast cancer
- First-line treatment of postmenopausal women with hormone receptor positive or hormone receptor unknown locally advanced or metastatic breast cancer
- Advanced breast cancer in postmenopausal women with disease progression following tamoxifen; patients with negative estrogen receptor have been shown in clinical trials to respond to anastrozole, although there was no response to tamoxifen.

Metabolism: Anastrozole is metabolized 85% in the liver by N-dealkylation, hydroxylation, and glucuronidation.

Excretion: Anastrozole is extensively metabolized, with approximately 10% excreted by the renal route within 72 hours of dosing and the remaining 60% excreted in the urine as metabolites. Because renal elimination is not a significant pathway of clearance, dose adjustments for severe renal impairment are not necessary.

Half-life: Anastrozole elimination half-life is 50 hours. Steady drug levels are achieved after seven days.

Effect on blood counts: Anastrozole rarely causes anemia or leukopenia.

Adverse reactions and events: Some of the more common side effects of anastrozole include hot flashes (25%–35%), asthenia (17%), headache (13%), and edema (10%). In clinical trials, an elevation of serum lipid levels occurred in patients taking anastrozole as compared to those on tamoxifen (7% versus 3%); therefore, patients with hyperlipidemia receiving anastrozole may need monitoring of serum lipid levels. Nausea is a common gastrointestinal side effect (10%–19%), whereas diarrhea, constipation, abdominal pain, and anorexia are reported with less frequency (8%).

In the Arimidex, Tamoxifen Alone or in Combination (ATAC) clinical trial that was initiated in 1996, women receiving anastrozole experienced a greater number of musculoskeletal disorders and bone fractures than women who received tamoxifen. However, women receiving anastrozole had a significantly lower incidence of vaginal bleeding, endometrial cancer, ischemic cerebrovascular events, and venous thromboembolic events than women who received tamoxifen. Follow-up analysis at 47 months has confirmed that patients are able to tolerate and benefit from anastrozole over an extended period of time.

Route and dosage: The usual dose of anastrozole is 1 mg orally once a day.

Interactions: No formal studies of anastrozole have been conducted. An interaction study with warfarin showed no clinical significance on anastrozole or warfarin pharmacokinetics. Based on in vitro and in vivo research findings, anastrozole does not appear to be a significant inhibitor or cytochrome p450.

Contraindications: None known.

Nursing implications: Nurses caring for patients who are receiving anastrozole should do the following.

- Remind patients that they should not be taking any medication containing estrogen while taking anastrozole.
- Inquire about the use of herbs, vitamins, and nutritional products and advise patients to avoid those that are estrogenic, such as red clover, ginseng, and angelica.
- Inform patients that anastrozole may be taken with or without food.
- Instruct patients to store anastrozole at room temperature in a closed container to protect from moisture, heat, and direct light.
- Discuss methods of coping with hot flashes, such as avoiding caffeine, using fans, dressing in layers, and wearing lightweight cotton clothes.
- Discuss ways to manage nausea if it is a problem.
- Discuss medication cost and determine whether patients will need to be referred to a patient assistance program.
- AstraZeneca offers two patient assistance programs: the AstraZeneca Foundation Patient Assistance Program, which is for patients without health insurance and very limited financial resources, and Together Rx, which is for patients with Medicare coverage with limited incomes (this program provides medications at a lower cost). For more information about these programs, call 800-959-5432 or visit www.astrazeneca-us.com.

Patient education: Patients receiving anastrozole should

- Be aware that the dose of the drug is 1 mg and is taken once a day with or without food.
- Know that anastrozole may cause nausea and, if nausea occurs, taking the medication with food may reduce this side effect.

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