The Effect of Exemestane, Anastrozole, and Tamoxifen on the Lipidemic Profile of Postmenopausal Early Breast Cancer Patients: Preliminary Results of National Surgical Adjuvant Study BC 04, the TEAM Japan Substudy

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Abstract

Introduction: Long-term inhibitors for breast cancer patients have been reported to lower serum lipids. The primary objective of this study was to evaluate the lipids profiles during a 5-year treatment period with exemestane, anastrozole, and tamoxifen in postmenopausal breast cancer patients. The secondary objective was to compare the effects of exemestane with those of anastrozole and tamoxifen.

Methods: This was a prospective, randomized, parallel-group study in postmenopausal women with hormone-responsive early breast cancer. Eligible patients were randomly assigned to 1 of 3 groups: exemestane (20 mg/d; n=50), anastrozole (1 mg/d; n=51), or tamoxifen (20 mg/d; n=54). Total cholesterol, low-density lipoprotein (LDL) cholesterol, high-density lipoprotein (HDL) cholesterol, triglycerides (TG), apolipoprotein A-I (apo A1), apolipoprotein B (apo B), lipoprotein(a), and remnant-like particle cholesterol (RLP-C) were measured at baseline and 3, 6, 12 months after surgery. All patients were followed for a total of 5 years compared with exemestane for a total of 3 years. The study design was subsequently amended to evaluate sequential treatment with anastrozole and exemestane.

Results: A total of 163 patients were enrolled in this study. Mean total cholesterol concentrations decreased during treatment with tamoxifen, and concentrations were significantly lower in the exemestane group compared with the anastrozole group at all time points (P≤0.01). Changes in total cholesterol and TG were greater in the exemestane group than in the tamoxifen group at 3 months (P<0.0001). The changes in other parameters in the 3 groups were not significantly different from those in the tamoxifen group. At baseline, the mean serum total cholesterol concentrations were 181 (51.9) mg/dL in the tamoxifen arm and 155 (64.2) mg/dL in the exemestane arm. After 3, 6, 12 months, all patients were followed for a total of 5 years compared with exemestane for a total of 3 years. The study design was subsequently amended to evaluate sequential treatment with anastrozole and exemestane.

Conclusions: The TEAM Japaneligible patients were randomly assigned to 1 of the following regimens: exemestane (20 mg/d; n=50), anastrozole (1 mg/d; n=51), or tamoxifen (20 mg/d; n=54). Total cholesterol, low-density lipoprotein (LDL) cholesterol, high-density lipoprotein (HDL) cholesterol, triglycerides (TG), apolipoprotein A-I (apo A1), apolipoprotein B (apo B), lipoprotein(a), and remnant-like particle cholesterol (RLP-C) were measured at baseline and 3, 6, 12 months after surgery. All patients were followed for a total of 5 years compared with exemestane for a total of 3 years. The study design was subsequently amended to evaluate sequential treatment with anastrozole and exemestane.

References

Figure 1. Patient Baseline and Distribution

Figure 2. Serum Triacylglycerol Concentrations

Figure 3. Serum HDL Concentrations

Figure 4. Lipoprotein Particle Parameters

Mean total cholesterol values are shown as mean ± standard error. Statistical significance was evaluated by analysis of variance (ANOVA) and generalized estimating equations with the baseline value as a covariate. *P≤0.0001 vs tamoxifen and anastrozole.

Figure 4. Lipoprotein Particle Parameters

Mean total cholesterol values are shown as mean ± standard error. Statistical significance was evaluated by analysis of variance (ANOVA) and generalized estimating equations with the baseline value as a covariate. *P≤0.0001 vs tamoxifen and anastrozole.

Table 1. Demographic Characteristics

Table 2. Lipid Parameters Assessed

Table 3. Lipid Parameters Assessed

Changes in Lipid Metabolism

A total of 157 patients were enrolled in this study. Mean total cholesterol concentrations were significantly lower in the exemestane group compared with the anastrozole group at all time points (P<0.0001). Changes in total cholesterol and TG were greater in the exemestane group than in the tamoxifen group at 3 months (P<0.0001). The changes in other parameters in the 3 groups were not significantly different from those in the tamoxifen group. At baseline, the mean serum total cholesterol concentrations were 181 (51.9) mg/dL in the tamoxifen arm and 155 (64.2) mg/dL in the exemestane arm. After 3, 6, 12 months, all patients were followed for a total of 5 years compared with exemestane for a total of 3 years. The study design was subsequently amended to evaluate sequential treatment with anastrozole and exemestane.

Conclusions

The beneficial effects of tamoxifen on lipid metabolism have been shown in various studies. The effects of tamoxifen on lipid profiles in breast cancer patients may provide useful information for the treatment of patients with breast cancer.