Prognostic Impact of Chemotherapy-Induced Amenorrhea in Premenopausal Patients with Breast Cancer following Adjuvant Chemotherapy

Khaled Abdel Karim*; Dalia Abdel Al **; Christine Reda ***;
Huda Mohran****
* Professor of Clinical Oncology & Nuclear Medicine
** Assistant Professor of Clinical Oncology & Nuclear Medicine
*** Lecturer of Clinical Oncology & Nuclear Medicine
****M.B.B.C.H
Faculty of Medicine, Ain Shams University

Abstract
Background: Breast cancer is the second most common cancer in the world and, by far, the most frequent cancer among women. Disease free survival (DFS) and overall survival (OS) have been improved by different adjuvant chemotherapy regimens, As a consequence, premenopausal patients developed chemotherapy-induced amenorrhea (CIA). Although chemotherapy and ovarian ablation independently improve the outcome of breast cancer, there is controversy about the benefit of CIA in these patients.
Objective: The aim of this study was to analyze the prognostic effect of chemotherapy- induced amenorrhea (CIA) on disease-free survival and overall survival in premenopausal patients with breast cancer following adjuvant chemotherapy.
Patients and Methods: Retrospectively, we reviewed the data of 200 premenopausal breast cancer patients, who underwent adjuvant chemotherapy, and were presented at the Oncology Department in Ain Shams University in 2014. One hundred ninety-two patients were enrolled in the study. Chemotherapy induced amenorrhea (CIA) was defined as the absence of menstruation for a year after the end of chemotherapy. The survival analyses were done using the Kaplan-Meier method and the log Rank Test.
Results: Median follow-up was 4 years. Mean age was 40.8 ± 6 years. CIA occurred in 66.1% of patients. Age and tumor grade were CIA predictors in logistic regression analysis. The 4-year disease-free survival (DFS) was higher in the CIA group than that in the non-CIA group (47.39 months vs 31.80 months, respectively; $P = < 0.001$), and the 4- year overall survival (OS) was higher in the CIA group than that of the non-CIA group (47.85 months vs 45.296 months, respectively; $P = 0.030$).
Conclusion: Chemotherapy-induced amenorrhea affects disease-free survival and overall survival in premenopausal breast cancer patients treated with adjuvant chemotherapy. It was a better prognostic marker and might be used as a surrogate marker for effective chemotherapy in these patients.