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**Introduction**

Breast cancer is the most frequently diagnosed cancer in women, with around 20% of those diagnosed being under the age of 50. Compared to older women with breast cancer, younger survivors face a higher risk of cancer-related symptoms and a decline in their quality of life (QOL). Younger women undergoing treatment for breast cancer often experience more treatment-related symptoms, particularly those linked to the menopausal transition.

**Objective**

This study aims to identify factors associated with chemotherapy-induced amenorrhea (CRA) and explore its impact on long-term quality of life (QOL).

**Materials and Methods**

The study included women diagnosed with stage I to III breast cancer, collecting data on an annual basis following diagnosis. This report focuses on data from participants enrolled between 2020 and 2023, with outcomes assessed up to three years after diagnosis. Participants were premenopausal women under the age of 50 who received chemotherapy but did not undergo adjuvant ovarian function suppression. At diagnosis, clinical, socioeconomic, tumor, and treatment characteristics were recorded for the analysis of factors contributing to CRA and persistent CRA, which was linked to long-term QOL. The primary outcome of interest was the occurrence of CRA at one (Y1), two (Y2), and three (Y3) years post-diagnosis. In the QOL analysis, the outcome of interest was QOL at Y3. Multivariable random-effect mixed models were used to assess the association between persistent CRA (defined as the absence of menstrual recovery after treatment) and QOL.

**Results**

The study included 61 women, with a mean age of 40.4 (SD 5.8) years at diagnosis. At Y1, 48 out of 61 women (78.7%) reported CRA, and this decreased to 35 of 48 (73%) at Y2 and 23 of 35 (65.7%) at Y3. Older age (adjusted OR for ≥45 years: 21.29 [95% CI, 14.34 to 31.61]) and undergoing adjuvant tamoxifen (adjusted OR: 1.97 [95% CI, 1.53 to 2.53]) were associated with CRA. In the QOL analysis, 30 out of 61 women (49.1%) had persistent CRA. However, among women aged 18 to 34 years, 2 of 6 (33%) who had no menses at Y2 reported late recovery of menses between Y2 and Y3. Persistent CRA was also found to be associated with a higher BMI (p = 0.03).

**Conclusions**

This cohort study of premenopausal Algérian women with breast cancer found that persistent CRA was common, though some women experienced late recovery of menses. Persistent CRA was associated with poorer long-term QOL. These findings can guide risk communication, personalized counseling, and early referrals for supportive care in this group.