Patients <45 years with breast cancer have a risk of developing premature ovarian failure (POF) (1). The incidence of chemotherapy-induced amenorrhea ranges between 45-61% among different studies. Resumption of menstrual cycles occurs often within two years of chemotherapy-induced amenorrhea, with an average time of recovery of about 7 months. The regain of premenopausal follicle-stimulating hormone (FSH) and estradiol (E2) levels after treatment did not lead necessary to a restore of fertility. The anti-Mullerian hormone (AMH) seems to be more accurate than other hormones in predicting the ovarian reserve.

Materials and Methods

- 740 patients aged 54 years treated with anthracycline or taxane-based CT for 4 German neoadjuvant/adjuvant trials were included. Blood samples were collected at baseline (n=740), end of treatment (EOT, n=740) as well as 6 (n=117), 12 (n=113), 18 (n=69), and 24 (n=47) months after EOT. Only samples of patients with skipped samples in a row were considered for the laboratory evaluation. E2, FSH and AMH were centred assessed.
- Premenopausal hormone level according to the central laboratory were FSH<12.4IU/l and estradiol ≤2.5ng/ml; fertile level of AMH as 0.22-12.0ng/ml.
- The time of regain was defined as the timepoint within which premenopausal hormone levels were regained. It was assessed for patients with postmenopausal hormone levels at EOT using Kaplan-Meier product-limit method to account for those patients who did not have all samples available in a time sequence. Patients with no regain have been censored at the date of the last hormone assessment.
- The rate of regain of premenopausal serum level of E2 and FSH was reported as percentage per each timepoint after EOT in patients with postmenopausal hormone level of E2 and FSH at EOT.

Objectives

- Median levels of FSH, E2 and AMH at EOT, as well as 6, 12, 18 and 24 months after EOT.
- Time of regain of premenopausal hormone level (6, 12, 18, 24 months after EOT).
- Association between FSH and E2 with AMH at EOT as well as 6, 12, 18, 24 months after EOT.

Results

- Median age was 40 (range 21-45) years; 57.2% had BMI 18.5-25, 41.1% ≤25, 32% of the patients had had their last menstrual period. 35.9% HER2+, 32.0% triple negative BC. Overall, 8.1% of patients received taxane treatment only before EOT; 44.5% of patients received dose-dense CT; CT duration was 24 weeks for 47.4% of the patients, 12 weeks for 8.1% of the patients.

Conclusions

Nearly 70% of women regain premenopausal hormone levels of FSH and E2 within 2 years after end of CT. Despite that, only less than one third maintain their fertility potential as predicted by AMH. AMH is a very sensitive marker for the prediction of fertility after treatment for CT for EBC.

References


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