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Abstract title: Fertility preservation (FP) and assisted reproductive technology (ART) for breast cancer patients (BCP)

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Aims: What are the best methods of FP pre-chemotherapy and infertility treatment for survivors post-chemotherapy in BCP? How many eggs and embryos can be attained pre-chemotherapy and post-chemotherapy, how many days do we need for FP, and what is the percentages of male factors?

Materials & Methods:
55 BCP who visited Kyono ART Clinic group from July 2008 to December 2014 [average age at first visit: 37.8 (25-49); diagnosed with breast cancer; 35.1 (23-47); and 78.2% (43/55) married] were divided into two groups [group A (52 cycles): pre-chemotherapy cycles; group B (47 cycles): post-chemotherapy cycles.

Results:
The 55 patients' receptors were [ER; HER2: positive (18; 3), negative (9; 19), unknown (28; 33)].
Average period to FP pre-chemotherapy was 2.0 ± 2.6 months.
A total of 99 cycles received ART. Number of retrieved oocytes, MII oocytes, and embryos were 5.6 ± 4.2 vs. 2.4 ± 2.5 (p=<0.01), 4.7 ± 3.3 vs. 2.1 ± 2.2 (p=<0.01), and 3.4 ± 4.6 vs. 1.1 ± 1.2 (p=<0.01), in groups A (52 cycles) and B (47 cycles), respectively.
Seven patients (including one after FP pre-chemotherapy and remission) in group A and four in group B became pregnant. 27.3% (15/55) of the patients' partners had male factor. Peak E2 levels in letrozole and non-letrozole cycles were 705.4 ± 886.8 pg/ml and 885.2 ± 777.2 pg/ml (NS).

Conclusions: We recommend BCP to receive ART for ovarian factor (advanced age and/or reduced ovarian reserve) and male factor (especially severe oligozoospermia) as soon as possible. For ovarian factor, more retrieved oocytes, MII oocytes, and embryos can be achieved pre-chemotherapy compared to those in post-chemotherapy treatment. For severe male factor, ICSI is recommended, especially in patients with advanced age.

Keywords: breast cancer, fertility preservation, chemotherapy, survivor, assisted reproductive technology