LONGITUDINAL TRENDS IN PROGNOSIS AND POST-TREATMENT PREGNANCY IN YOUNG WOMEN WITH TRIPLE-NEGATIVE BREAST CANCER

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Background and Objective

- Young women with triple-negative breast cancer (TNBC) have traditionally been associated with poor prognosis. However, treatment outcomes are expected to improve with advances such as response-guided neoadjuvant chemotherapy, PARP inhibitors, and immune checkpoint inhibitors (ICI).
- Advances in oncofertility have increased expectations for pregnancy after treatment among young cancer patients.

Aim

To evaluate treatment outcomes, trends in fertility preservation, and pregnancy outcomes among young patients with TNBC.

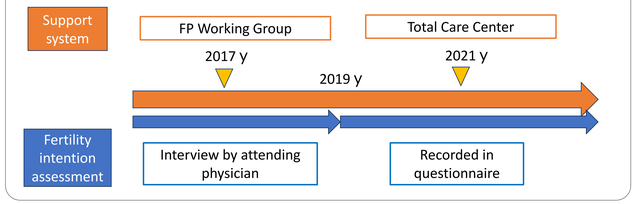
Patients

- 179 women <40 years old with primary TNBC (cStage I–III)
- Curative surgery at our institution (2007–2022)
- Exclusions: history of other cancers or synchronous bilateral breast cancer

Methods

- We compared clinicopathological factors, systemic treatments, and outcomes (disease-free survival(DFS) and overall survival(OS)) between patients who underwent surgery in the first 8-year period (2007–2014) and those in the latter 8-year period (2015–2022).
- Because the number of pregnancy and delivery cases was limited, fertility preservation and pregnancy outcomes over the entire 16-year period were evaluated retrospectively.

《Method of Assessing Desire for Childbearing at Our Institution》
Since 2019, fertility desire has been assessed using a questionnaire, whereas before that, it was mainly obtained through interviews by the attending physician. Fertility Preservation Working Group was established in 2017, and Total Care Center was established in 2021, providing institutional support for patients' fertility preservation preferences.



《Treatment Practices in Our Institution》



Result

Table1: Clinicopathological Factors and Their Comparison Across Surgical Eras

factors		All N=179	2007～2014 n＝84	2015～2022 n=95	p-value
Mean age (years)		34.4	34.0	35.0	0.2220
Previous birth		83 (46%)	36 (43%)	47 (50%)	0.4529
BRCA1/2 testing	+	40 (22%)	16 (%)	24 (%)	<0.0001
	−	54 (30%)	10 (12%)	44 (46%)	
	Unknown	81 (45%)	58 (69%)	23 (24%)	
BRCA1/2 Positivity rate[1)]		43%	62%	35%	0.0175
cStage	I	42 (23.5%)	20(24%)	22 (23%)	0.6996
	II	103 (58%)	46 (55%)	57 (60%)	
	III	34 (18%)	18 (21%)	16 (17%)	
Chemotherapy (+)		171 (96%)	78 (93%)	93 (98%)	0.1036
Of these, neoadjuvant chemotherapy(+)		93 (54%)	40 (51%)	53 (57%)	0.2749
ICI[2)]		2 (1%)	0	2 (2%)	0.1011
Capecitabine		14 (8%)	0	14 (15%)	0.0001
PARP inhibitors[2)]		6(4%)	1 (1%)	5 (5%)	0.0775

[1)]Proportion among tested cases
[2)]All cases enrolled in clinical trials

Table2: Fertility Desire and Fertility Preservation: Comparison Across Surgical Eras

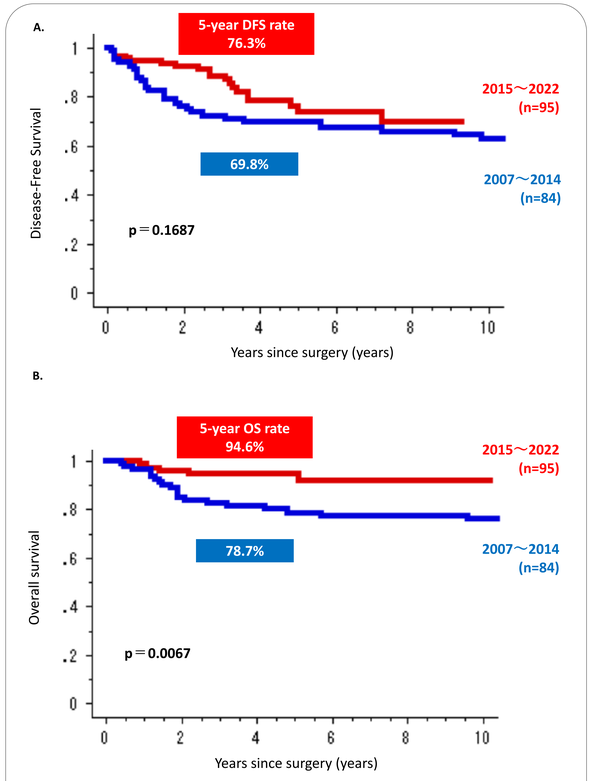
factors		All N=179	2007～2014 n＝84	2015～2022 n=95	p-value
Childbearing	−	64(36%)	25 (30%)	39 (41%)	0.0004
	+	61 (34%)	25 (30%)	36 (38%)	
	Unknown	54 (30%)	32 (38%)	22 (23%)	
FP rate among fertility-desiring patients		42.6%	16%	61.1%	0.0002

Table3: Pregnancy outcomes after treatment.

Pregnancy※1	**23 pregnancies in 17 patients** 9% of all patients 28% of those who desired childbirth
Assisted reproductive technology	9 patients
Mean interval from surgery to first pregnancy	**3.6 (0.4-8.7) year**
Mean age at first pregnancy	**32.5 (30-39) years**
Childbearing※2	**15 patients, 17 deliveries** 88% of pregnancies 8.4% of all patients 24.6% of those who desired childbirth

※1 Pregnancy attempted only after completion of postoperative therapy and confirmation of no recurrence.
※2 No severe perinatal complications; 2 cases of contralateral breast cancer post-childbearing; no distant recurrence or breast cancer death.

Figure1: Comparison of prognosis



Comparison of 5-year DFS(A) and OS(B) between early and later cohorts. Both outcomes improved in the later cohort, with a more pronounced improvement in OS.
The median follow-up period was 9.3 years in the early cohort and 4.8 years in the later cohort.

Discussion

- The lower proportion of patients expressing a desire for childbearing in the latter period may be explained by the higher number of patients who already had prior births.
- However, the increase in fertility preservation in the latter period likely reflects more frequent assessment of fertility preservation, the establishment of an institutional system to support fertility preservation at our hospital, and the implementation of government subsidy programs.
- ASCO guidelines also recommend providing early counseling on the risk of infertility and available fertility preservation options before treatment, and promptly referring patients to reproductive specialists if their intentions are uncertain.

《Comparison between the POSITIVE trial and our cases》
The POSITIVE trial was a prospective study evaluating the safety of temporarily interrupting endocrine therapy to attempt pregnancy in premenopausal women aged 42 or younger with hormone receptor–positive breast cancer who desired children.Among those who attempted pregnancy, 74% conceived and 64% delivered.Compared with our study, the pregnancy rate is lower, but the delivery rate is higher at 88%.Considering that the mean age in our study was younger, these results suggest that even patients with Stage III TNBC can achieve live birth if they desire pregnancy.

	POSITIVE trial（HR+）	Our cases（TNBC）
Mean age	37 years	34.4 years
StageⅢ	6%	18%
Pregnancy rate	74%	28%
Delivery rate	64%	88%

Summary

- Although the number of cases was small, treatment outcomes for young patients with TNBC at our institution have significantly improved in recent years, and there has been an increasing trend to implement fertility preservation.
- All patients who became pregnant after surgery completed perioperative systemic therapy, confirmed no recurrence before attempting pregnancy, and no distant recurrence or death was observed after delivery.

Conclusions

The prognosis of young patients with TNBC has shown an improving trend, and the rate of fertility preservation has increased in recent years.These findings suggest that the importance of providing information and supporting decision-making regarding post-treatment pregnancy will continue to grow in the future.

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