PS2-06-30

Real-World Uptake of *gBRCA* Testing as a Companion Diagnostic for Olaparib in Patients with HER2-negative High-risk Early Breast Cancer in Japan: A Cross-Sectional Multicenter Study (BRCAwareness)

T. Taji[1], Y. Uemura[2], Y. Kimura[3], N. Maeda[4], A. Ito[5], H. Seki[6], D. Takabatake[7], M. Harao[8], S. Nakamoto[9], R. Matsunuma[10], C. Koganezawa[11], T. Iwamoto[12], H. Mukai[13], Y. Kikawa[1]

SAN ANTONIO BREAST CANCER SYMPOSIUM
DECEMBER 10–13, 2024
SABCS.ORG

Background

In patients (pts) with HER2-negative, high-risk early breast cancer (eBC), adjuvant (Adj) olaparib (OLA) significantly improves invasive disease-free survival and overall survival in those carrying germline *BRCA1* or *BRCA2* (*gBRCA*) pathogenic variants (PVs) [1].
To optimize clinical outcomes, timely *gBRCA* testing as a companion diagnostic is essential. However, the real-world uptake of *gBRCA* testing in this population remains unclear.

Methods

Inclusion criteria
- Newly diagnosed pts with HER2-negative eBC who underwent curative surgery from January 1, 2023 to December 31, 2023 in Japan
- ER-positive pts required either ≥ 4 positive lymph nodes after surgery or non-pathological complete response (pCR) with a CPS+EG score ≥ 3 following neoadjuvant chemotherapy (NAC)
- ER-negative pts required an invasive tumor > 2 cm or ≥ 1 nodal metastasis after surgery, or non-pCR after NAC

Collecting data
- Patient-level data
- Aggregate facility-level data

Primary outcome
Proportion of patients receiving *gBRCA* testing

Secondary outcomes
- Factors associated with not undergoing *gBRCA* testing
- Proportion of pts with *gBRCA* PVs among those who underwent *gBRCA* testing
- Proportion of pts with *gBRCA* PVs who started adj OLA
- Other treatments used in pts with *gBRCA* PVs not receiving adj OLA

Table 1. Demographics and other characteristics

		N=691
Age	< 65	384 (55.6%)
Sex	Male	7 (1.0%)
Neoadjuvant chemotherapy	Yes	362 (52.4%)
Subtype*	Triple negative	344 (49.8%)
	Luminal	347 (50.2%)
Menopausal status**	Premenopausal	203 (29.7%)
Parity**	Yes	513 (75.0%)
Two or more primary breast cancers	Yes	25 (3.6%)
Bilateral breast cancer	Yes	52 (7.5%)
Major comorbidities	Yes	87 (12.6%)

*Subtype was determined at each participating institution. **Denominator = number of women

Results

Figure 1. Patient Flow Diagram

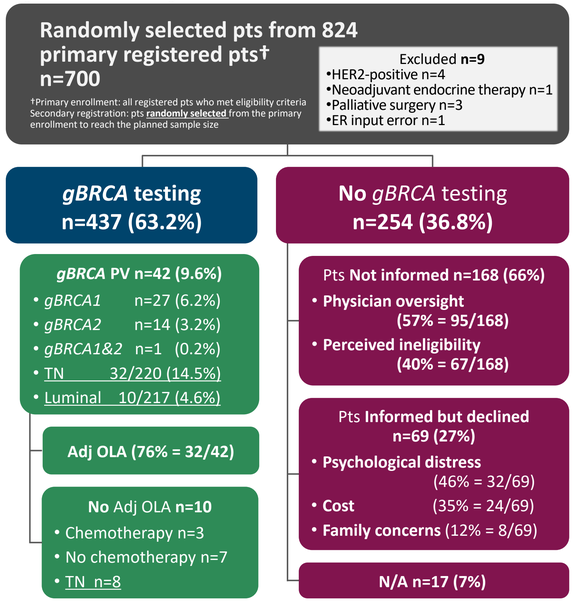


Table 2. Institutional characteristics

		N=46
Certified Genetic Counselor	Yes	27 (58.7%)
Certified Japanese Board of Medical Genetics and Genomics, Clinical Genetics	Yes	36 (78.3%)
Number of specialists of the Japanese Breast Cancer Society	Median	3
	Min - Max	1 - 17
Certified Nurse in Breast Cancer Nursing or Certified Nurse Specialist in Cancer Nursing	Yes	42 (91.3%)
Number of breast cancer surgeries in 2023	< 199	27 (58.6)
	200 - 299	10 (21.7%)
	300 - 399	6 (13.0%)
	400 <=	3 (6.5%)
Accreditation of facilities from JOHBOC	No	21 (45.7%)

JOHBOC: Japanese Organization of Hereditary Breast and Ovarian Cancer

Conclusions

Appropriately timed *gBRCA* testing was underutilized. (63%)

Less likely to undergo testing
- **Age ≥ 65 years**
- **Postmenopausal status**
- **Major comorbidities**

More likely to undergo testing
- **Neoadjuvant chemotherapy**
- **Family history of HBOC-related cancer**
- **Bilateral breast cancer or ≥ 2 primary breast cancers**

66% untested pts **not informed:**
- **Physician oversight (57%)**
- **Perceived ineligibility for Adj chemotherapy / OLA (40%)**

Take-home message

Greater physician awareness of timely *gBRCA* testing for Adj OLA is needed.

Table 3. Multivariate analysis of factors associated with not undergoing *gBRCA* testing (women only)

		Tested N=431	Not tested N=253	Odds Ratio	95% CI		p-value
Age	< 65	302	81	ref			
	≥ 65	129	172	**0.30**	**0.19**	**0.49**	**<.0001**
Menopausal status	Premenopausal	174	31	ref			
	Postmenopausal	257	222	**0.41**	**0.24**	**0.73**	**0.0024**
Family history of HBOC-related cancer	No, N/A	266	213	ref			
	Yes	165	40	**3.57**	**2.25**	**5.68**	**<.0001**
Subtype	Triple negative	219	124	ref			
	Luminal	212	129	0.76	0.51	1.13	0.1753
Neoadjuvant chemotherapy	No	168	157	ref			
	Yes	263	96	**1.94**	**1.29**	**2.92**	**0.0016**
Bilateral BC or two or more primary breast cancers	No, N/A	381	234	ref			
	Yes	50	19	**2.16**	**1.10**	**4.22**	**0.0245**
Parity	No, N/A	112	59	ref			
	Yes	319	194	1.18	0.73	1.89	0.4975
Major comorbidities	No, N/A	429	217	ref			
	Yes	2	36	**0.06**	**0.01**	**0.29**	**0.0004**
Number of specialists of the Japanese Breast Cancer Society	< 4	225	145	ref			
	4 <=	206	108	0.84	0.39	1.81	0.6558
Number of breast cancer surgeries in 2023	< 300	269	185	ref			
	300 <=	162	68	0.95	0.42	2.13	0.8972
Certified Genetic Counselor or Certified Japanese Board of Medical Genetics and Genomics, Clinical Genetics	No	31	34	ref			
	Yes	400	219	2.61	0.97	7.01	0.0563
Certified Nurse in Breast Cancer Nursing or Certified Nurse Specialist in Cancer Nursing	No	14	14	ref			
	Yes	417	239	1.56	0.40	6.10	0.5198
Accreditation of facilities from JOHBOC	No	131	108	ref			
	Yes	300	145	1.39	0.67	2.86	0.3739

Table 4. Purpose and timing of *gBRCA* testing

Purpose	N=437
Companion diagnosis	258 (59.0%)
HBOC diagnosis	251 (57.4%)
Timing	**N=437**
Before NAC or surgery	151 (34.6%)
During NAC	95 (21.7%)
After surgery and before Adj chemotherapy	122 (27.9%)
During Adj chemotherapy	68 (15.6%)
Other	1 (0.2%)

Table 5. Subtype and treatment strategy

	NAC	Upfront surgery
Triple negative	214 (31.0%)	130 (18.8%)
Luminal	148 (21.4%)	199 (28.8%)

Table 6. Results of *gBRCA* testing

gBRCA1 / *gBRCA2*	PV (+)	VUS	PV (-)	Total
PV (+)	1	0	14	15
VUS	2	0	9	11
PV (-)	25	2	384	411
Total	28	2	407	437

Contact

Tomoe Taji
Kansai Medical University
Email: taji.tom@kmu.ac.jp
Website:

Affiliations

1. Breast Surgery, Kansai Medical University, Osaka, JAPAN
2. Center for Clinical Science, Japan Institute for Health Security, Tokyo, JAPAN
3. Breast Surgical Oncology, The Cancer Institute Hospital of Japanese Foundation for Cancer Research, Tokyo, JAPAN
4. Gastroenterological, Breast and Endocrine Surgery, Yamaguchi University Graduate School of Medicine, Yamaguchi, JAPAN
5. Breast Surgery, Akita Red Cross Hospital, Akita, JAPAN
6. Breast Surgery, Kyorin University Hospital, Tokyo, JAPAN
7. Breast Surgery, National Hospital Organization Shikoku Cancer Center, Ehime, JAPAN
8. Breast Oncology, Jichi Medical University, Tochigi, JAPAN
9. Breast and Endocrine Surgery, Okayama University Hospital, Okayama, JAPAN
10. Breast Surgery, Shizuoka General Hospital, Shizuoka, JAPAN
11. Breast Oncology, Hokkaido Cancer Center, Hokkaido, JAPAN
12. Breast and Thyroid Surgery, Kawasaki Medical School, Okayama, JAPAN
13. Medical Oncology, National Cancer Center Hospital East, Chiba, JAPAN.

Acknowledgements

We are grateful to the CSPOR-BC staff, Ms. Yoko Yamauchi, Ms. Kae Sue, and Ms. Yuri Maruyama, for their invaluable support in study coordination and administration.

References

1. Geyer CE et al. Ann Oncol. 2022;33(12):1250-1268.

COI

Speaker's bureau fee: Daiichi Sankyo Company, Limited, Chugai Pharmaceutical Co., Ltd., MSD K.K.
Research grant funds: Astrazeneca K.K.
This study was supported by AstraZeneca and Merck Sharp & Dohme LLC, a subsidiary of Merck & Co., Inc., Rahway, NJ, USA, who are codeveloping olaparib.

This presentation is the intellectual property of the author/presenter. Contact them at taji.tom@kmu.ac.jp for permission to reprint and/or distribute.

© Poster Template by Genigraphics® 1.800.790.4001 www.genigraphics.com