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ORIGINAL ARTICLE

Quality of care measurement for patients with ovarian cancer in Japan

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Abstract

Aim: Quality of care is important to reduce disease progression, and improve both survival and quality of life. The Japan Society of Gynecologic Oncology has published treatment guidelines to promote standardized high-quality care for ovarian cancer in Japan. We developed quality indicators based on the guideline recommendations and used them on large datasets of health service use to examine the quality of ovarian cancer care.

Methods: A panel of experts developed the indicators using a modified Delphi method. Adherence to each indicator was evaluated using data from a hospital-based cancer registry of patients diagnosed in 2018. All patients receiving first-line

treatment at participating facilities were included. The adherence rates were returned to participating hospitals, and reasons for nonadherence were collected. A total of 580 hospitals participated, and the study examined the care received by 6611 patients with ovarian cancer and 1879 with borderline tumors using 11 measurable quality indicators.

Results: The adherence rate ranged from 22.6% for "Estrogen replacement within 6 months of operation" to 93.5% for "Bleomycin, etoposide, and cisplatin for germ cell tumor more than Stage II." Of 580 hospitals, 184 submitted the reasons for nonadherence.

Conclusions: The quality of ovarian cancer care should be continuously assessed to encourage the use of best practices. These indicators may be a useful tool for this purpose.

KEYWORDS
guideline adherence, health care, ovarian neoplasms, process assessment, quality of medical care

INTRODUCTION

Ovarian cancer is the leading cause of death among the gynecologic cancers. A higher proportion of patients with ovarian cancer present with advanced-stage tumors than other gynecological cancers, because most patients with early stage disease are asymptomatic, and the symptoms are generally nonspecific, and often suggest the presence of upper abdominal disease even in the advanced stages.[1] The global cancer statistics for 2018 reported 295 414 new cases of ovarian cancer and 184 799 deaths from the disease.[2] There were approximately 13 049 patients with ovarian cancer in Japan in 2018, where this condition has a high mortality among gynecologic malignant tumors. Current 5-year survival rates are 60.0% for all stages in women diagnosed in 2009–2011.[3]

Quality (efficiency and effectiveness) of care is expected to reduce disease progression, improving survival rates and quality of life.[4] In 2016, the European Society of Gynecologic Oncology (ESGO) developed a list of quality indicators for advanced ovarian cancer surgery,[5] because this surgery is complex, and quality management has a major impact on survival.[6] Studies in Spain in 2020[7] and France in 2021[8] used the ESGO list of quality indicators to assess the quality of care in regional centers authorized to treat gynecological cancer. In 2019, the Australian Society of Gynecologic Oncologists developed a clinical quality registry that targets the diagnosis and treatment of ovarian, tubal, and peritoneal tumors.[9]

In 2004, the Japan Society of Gynecologic Oncology published its first treatment guidelines for ovarian cancer, to promote standardized high-quality care in Japan. This was revised in 2015 and 2020.[10] It is important to evaluate whether treatment centers adhere to the recommendations in these guidelines, to ensure that all patients receive high-quality care.

This study aimed to investigate the quality of care for patients with ovarian cancer by whether they received care to the expected standards. We therefore developed process-of-care indicators using internationally standardized methods and used them to examine large datasets of health service use.

METHODS

Indicator development

We developed indicators for ovarian cancer using the Research and Development (RAND)/University of California, Los Angeles (UCLA) modified Delphi methods.[11] First, 16 clinical experts proposed candidate indicators for ovarian cancer based on guideline recommendations. These indicators defined target patients and the recommended care processes as standards. The analysis team developed these candidate indicators into measurable forms, and these were rated for validity and measurement needs by each clinical expert, on a scale of 1–9 (1 = extremely low; 9 = extremely high). The expert panel then discussed each candidate indicator and modified the content if necessary after the initial rating. Each candidate indicator was rated again after the discussion. The indicators were considered valid if the median ratings for both validity and measurement needs were ≥7 (i.e., >50% of 16 panel members rated the indicator as ≥7), and no more than 2 members rated it as ≤3. The candidates that were considered worth measuring, but not valid as quality indicators, were designated pattern-of-care items.

Data sources

We used the indicators to examine a database combining the national database of the Hospital-Based Cancer Registry (HBCR)[12] and health services use data from the Diagnosis Procedure Combination (DPC) survey.

The HBCR is a database that collects basic information on new cancer cases at hospitals. Cancer care hospitals designated by the Ministry of Health are required to maintain the registry, and it also runs at nondesignated hospitals. HBCR data are submitted to the National Cancer Center once a year and compiled into a national database. These data contain patient demographics and clinical cancer information, such as clinical and pathological stages, Union for International Cancer Control (UICC) tumor-node-metastasis classifications, tumor location, and histopathological findings based on the International Classification of Diseases Oncology third edition (ICD-O-3). This analysis extracted all patients with ovarian cancer (ICD-O morphology: C56.9) from the database. Cancers of the fallopian tube (C57.0) or peritoneum (C48.1, C48.2) were excluded. The DPC survey data contain information on health services provided equivalently as fee-for-service health insurance claims. Hospitals that participated in HBCR were invited to participate in the study as a national quality monitoring program. This study collected health services data from October 2017 to March 2020 and linked them to the HBCR data. The period for DPC data collection allowed the inclusion of all tests and treatments performed for cancer cases diagnosed in 2018. To integrate the two data sources, we asked participating hospitals to assign common research IDs to patients using designated data-processing software.

Data analysis

The analysis included all patients who received first-line treatment at participating facilities. Adherence rates were calculated for each indicator, as the proportion of eligible patients who received the care described by the indicator. The established indicators are procedures that should be part of standard care. The cutoff value for adherence rate was set to categorize adherence levels of ≥80% as "high" and ≤50% as "low."

Reasons for nonadherence to quality indicators

The results were provided to the participating hospitals, and hospitals were asked to submit the reasons for nonadherence to care recommendations. These reasons were categorized and their frequency was examined. Reasons cited for fewer than 10 patients were not reported because of privacy protection rules. Reasons were categorized into clinical and nonclinical reasons. All analyses used Stata version 16.1 (StataCorp LP, College Station, TX, USA). This study protocol was approved by the Institutional Review Board of the National Cancer Center, Japan (approval No. 2013-081). We implemented an opt-out approach to research consent.

RESULTS

Patient sample

This study included 580 hospitals and examined the care received by 6611 patients with ovarian cancer and 1877 with borderline tumors using 11 measurable indicators. Overall, 828 facilities were registered with the HBCR, including 775 designated hospitals and 53 nondesignated hospitals. This study therefore covered 70.0% of HBCR-participating facilities. Our database included 65.1% (8490/13 049) of patients from the national population-based cancer registry. Patient characteristics are shown in Table 1. The mean age was 58.5 years (standard deviation [SD]: 14.8) for ovarian cancer and 54.0 years (SD: 17.6) for borderline tumors. There were 2905 (43.9%) patients in Stage I, 549 (8.3%) in Stage II, 1871 (28.3%) in Stage III, and 1128 (17.1%) in Stage IV for ovarian cancer and 1766 (94.1%) in Stage I, 22 (1.2%) in Stage II and 38 (2.0%) in Stage III for borderline tumors.

Indicators and adherence

The expert panel proposed 36 candidate indicators, of which 11 were accepted as quality indicators and 5 as pattern-of-care items. Two indicators covered histopathological diagnosis and two addressed prophylactic examination and thrombosis treatment. There were six for chemotherapy, including clear cell carcinoma and germ cell tumor treatments and another on hormone replacement treatment (HRT). The indicators generally describe the care that should be provided. However, two quality indicators and one pattern-of-care item describe care that should generally be avoided or are not recommended for the target patient population (ov9, ov10, and ov4x). Details of quality indicators and pattern-of-care items are shown in Table S1, Supporting Information.

The adherence data are shown in Tables 2 and 3. The adherence rate varied across facilities (see the centipede plots in Figure S1). Ov1, 2, 8, and 11 showed a stepped distribution, and the other indicators showed an arc-shaped distribution. The stepped distribution may indicate a clear distinction in care/treatment strategies between hospitals.

Apart from the five pattern-of-care items, the greatest interfacility variation was seen for "histopathology before chemotherapy in patients with unresectable ovarian cancer" (ov2), with adherence rates of 61.8% (SD: 48.6). The smallest variation was seen for "Avoiding unconventional chemotherapy for mucinous cell carcinoma and clear cell carcinoma" (ov10) and "Bleomycin, etoposide and cisplatin (BEP) for germ cell tumor higher than Stage II" (ov5), with adherence rates of 93.6% (SD = 24.5) and 93.5% (SD = 25.0). The indicator with the lowest adherence rate was "Estrogen replacement within 6 months of operation" (ov11, 22.6%). Just 79/778 (10.2%) patients

TABLE 1 Patient characteristics.

Variables	Values	
	Ovarian cancer	Borderline tumor
Age, mean (standard deviation)	58.5 (14.8)	54.0 (17.6)
Histology type (%)		
Surface epithelial-stromal tumors		
Serous tumors	1993 (30.2)	491 (26.2)
Mucinous tumors	611 (9.2)	1385 (73.8)
Endometrioid tumors	1129 (17.1)	0 (0.0)
Clear cell tumors	1532 (23.2)	0 (0.0)
Brenner tumors	15 (0.2)	0 (0.0)
Seromucinous tumors	0 (0.0)	0 (0.0)
Undifferentiated carcinoma	24 (0.4)	0 (0.0)
Unknown	775 (11.7)	1 (0.1)
Mesenchymal tumors	0 (0.0)	0 (0.0)
Mixed epithelial and mesenchymal tumors	0 (0.0)	0 (0.0)
Sex cord-stromal tumors		
Pure stromal tumors	0 (0.0)	0 (0.0)
Pure sex cord tumors	27 (0.4)	0 (0.0)
Mixed sex cord-stromal tumors	0 (0.0)	0 (0.0)
Germ cell tumors		
Dysgerminoma	49 (0.7)	0 (0.0)
Yolk sac tumor	37 (0.6)	0 (0.0)
Embryonal carcinoma	0 (0.0)	0 (0.0)
Nongestational choriocarcinoma	2 (0.0)	0 (0.0)
Mature teratoma	0 (0.0)	0 (0.0)
Immature teratoma	131 (2.0)	0 (0.0)
Mixed germ cell tumor	19 (0.3)	0 (0.0)
Monodermal teratoma and somatic-type tumors arising from cyst	0 (0.0)	0 (0.0)
Germ cell-sex cord-stromal tumors	0 (0.0)	0 (0.0)
Miscellaneous tumors	0 (0.0)	0 (0.0)
Lymphoid and myeloid tumors	0 (0.0)	0 (0.0)
Unknown	267 (4.0)	0 (0.0)
UICC/FIGO stage (%)		
I	2905 (43.9)	1766 (94.1)
II	549 (8.3)	22 (1.2)
III	1871 (28.3)	38 (2.0)
IV	1128 (17.1)	0 (0.0)
Unknown	125 (2.4)	51 (2.7)
First-line treatment (%)		
Surgery	1261 (19.1)	1601 (85.3)
Chemotherapy	721 (10.9)	4 (0.2)
Surgery + chemotherapy	4149 (62.8)	48 (2.6)
Other	480 (7.3)	224 (11.9)

Abbreviations: FIGO, International Federation of Gynecology and Obstetrics; UICC, Union for International Cancer Control.

received HRT between 6 months and 1 year after their operation (ov11). Table 3 shows that adherence rates were generally lower for pattern-of-care items than quality indicators, which was expected.

Reasons for nonadherence

In total, 184 of the 580 participating hospitals provided reasons for nonadherence to quality indicators (Table 4). In several cases, the reasons were nonclinical, and often "unknown" especially for ov1–4, 8, 9, and 11. Details of nonclinical reasons are shown in Table S2. Nonadherence because of the patient's poor general condition was most frequent for ov2. No detailed analysis was possible for ov5 because it had fewer than 10 responses. Almost all the comorbidities for ov6 related to poor general condition of the patients. Many reasons in the category of "other" nonclinical reasons were about choosing the best supportive care or the patient dying before they could start chemotherapy. Comorbidities in ov8 included hypertension and proteinuria during combination therapy. Ov9 described treatment to be avoided, and thus the reasons included administering bevacizumab to patients at early stages. "Other" for ov11 included fertility preservation surgery.

DISCUSSION

We developed 11 quality indicators and 5 pattern-of-care items and used them to examine nationwide HBCR and health services utilization data. In general, indicators about "things to avoid" showed good adherence with notably low proportions (<10%) receiving this care/treatment. However, diverse adherence rates were observed for the other indicators (i.e., "things to do"), suggesting heterogeneous practice patterns across facilities. Further study is needed of the reasons for nonadherence to fully understand the sources of variability.

A well-established body of evidence emphasizes histological, rather than cytological, diagnosis for malignancy.[13] In our study, cell block cytopathology was seldom used as a substitute. Surgical intervention around the ovary is more challenging than for other organs, and requires general anesthesia, especially for symptomatic advanced-stage patients requiring immediate treatment. Staging laparoscopy and cell block cytopathology use in gynecological areas were uncommon around 2018 in Japan. Figure S1 shows a more pronounced gap between facilities for ov1 and ov2 than for other indicators, possibly because of the differences in surgical resources for pathology across these facilities. Ov1 and ov2 are consistent with the Australian quality registry ("percentage of patients with apparent Stage I, II, or IIIA ovarian, tubal, and peritoneal cancer who are adequately surgically staged" and "percentage of patients who receive a histological or cytological confirmation of an ovarian, tubal, and peritoneal cancer diagnosis before receiving neoadjuvant chemotherapy"),[9] reflecting the

TABLE 2 Adherence rates for quality indicators (QIs).

	Indicator	Target patients (number)	Specified care (number)	Adherence rate (%)	Standard deviation (95% confidence interval)
Histopathological diagnosis	ov1	Histopathology before neoadjuvant chemotherapy for ovarian cancer patients			
		Ovarian cancer patients with neoadjuvant chemotherapy ($n = 1022$)	Patients who had histopathology (except cell block cytopathology) before neoadjuvant chemotherapy ($n = 690$)	67.5	46.9 (64.5–70.4)
	ov2	Histopathology before chemotherapy for ovarian cancer patients without surgical intervention			
		Ovarian cancer patients who had chemotherapy without surgical intervention through data period ($n = 476$)	Patients who had histopathology (except cell block cytopathology) before chemotherapy ($n = 294$)	61.8	48.6 (57.2–66.2)
Management of thrombosis	ov3	D-dimer test or lower-extremities venous ultrasonography before intervention			
		Ovarian cancer patients with any intervention ($n = 5913$)	Patients who had D-dimer test or lower-extremities venous ultrasonography 2 months to a day before the treatment ($n = 4654$)	78.7	40.9 (77.6–79.7)
	ov4	Administration of anticoagulant in perioperative period			
		Ovarian cancer patients with surgical intervention ($n = 4408$)	Patients administered heparin, low-molecular heparin, or Xa inhibitor in the perioperative period (1 week before to 1 month after the intervention) ($n = 5194$)	84.9	35.8 (83.9–85.8)
Chemotherapy	ov5	Bleomycin, etoposide and cisplatin (BEP) for germ cell tumor higher than Stage II			
		Germ cell tumor higher than Stage II ($n = 46$)	Administration of bleomycin, etoposide, and cisplatin ($n = 43$)	93.5	25.0 (82.1–98.6)
	ov6	Adjuvant chemotherapy for Stage II, III, and IV after surgical intervention			
		Stage II, III, and IV ovarian cancer patients with surgical intervention ($n = 2683$)	Patients with adjuvant chemotherapy ($n = 2260$)	84.2	36.4 (82.8–85.6)
	ov7	Administering TC regimen[a] or dd-TC regimen[b] as a first-line chemotherapy			
		Ovarian cancer patients with first-line chemotherapy ($n = 5025$)	Patients with TC regimen, dd-TC regimen, and TC + bevacizumab combination therapy ($n = 4431$)	88.2	32.3 (87.3–89.1)
	ov8	Bevacizumab maintenance therapy for Stage III and IV patients with TC + bevacizumab combination therapy			
		Stage III and IV patients with adjuvant therapy of TC + bevacizumab combination therapy ($n = 815$)	Administration of bevacizumab more than twice after last TC administration ($n = 509$)	62.5	48.5 (59.0–65.8)
Chemotherapy (non-recommended indicator)	ov9	Avoiding combination of bevacizumab and TC regimen as first-line chemotherapy for Stage I and II patients			
		Stage I and II ovarian cancer patients with first-line chemotherapy (except bevacizumab) ($n = 1695$)	Those who were not administered bevacizumab (expected = 1695)	89.9	30.2 (88.4–91.2)

TABLE 2 (Continued)

	Indicator	Target patients (number)	Specified care (number)	Adherence rate (%)	Standard deviation (95% confidence interval)
	ov10	Avoiding unconventional chemotherapy for mucinous cell carcinoma and clear cell carcinoma			
		Ovarian cancer patients diagnosed with mucinous cell carcinoma or clear cell carcinoma ($n = 1588$)	Those who were not administered anticancer agent other than taxane + platinum as first-line chemotherapy ($n = 1588$)	93.6	24.5 (92.3–94.7)
Post-treatment	ov11	Estrogen replacement within 6 months of surgical intervention			
		Patients undergoing uterine adnexa malignant tumor surgery younger than 45 years old ($n = 778$)	Estrogen replacement within 6 months of surgical intervention ($n = 176$)	22.6	41.9 (19.7–25.7)

[a]TC regimen: paclitaxel + carboplatin regimen.
[b]dd-TC regimen: dose-dense TC regimen.

international focus on adequately staging patients with apparent Stage I, II, or IIIA ovarian, tubal, and peritoneal cancer and confirming their diagnosis before neoadjuvant chemotherapy. This similarity underscores the globally recognized importance of these issues in real-world practice. New treatments like poly-(ADP-ribose) polymerase (PARP) inhibitors and their indication assessment with the homologous recombination deficiency companion diagnostic test (MyChoice™) may alter histologic assessment practices. This analysis covers patients diagnosed from January to December 2018, when bevacizumab was widely used but PARP inhibitors were not covered by national health insurance. Applying these indicators to later data may prove useful as staging laparoscopy becomes more prevalent and use of PARP inhibitors increases.

Cancer is a recognized risk factor for thrombosis, and ovarian cancer elevates this risk significantly more than other cancers.[14] We therefore included thrombosis indicators. Some facilities may opt for enhanced computed tomography for thrombosis screening. However, we excluded computed tomography tests because we could not distinguish the examination's purpose (venous thromboembolism evaluation screening or lesion evaluation). The result for ov3 may therefore be lower than in a clinical setting. In Japan, anticoagulants such as low-molecular-weight heparin and factor Xa inhibitors have been widely used for many years.[15] For ov4, we included unfractionated heparin and other agents, giving a high adherence rate, indicative of practitioners' heightened awareness of thrombosis risk.

Ovarian cancer is notably responsive to chemotherapy compared with other solid cancers, making this a crucial treatment for advanced-stage patients. Ov6 aims to assess the practice of adjuvant therapy for older patients, where those eligible for surgery are also candidates for chemotherapy.[16] Adherence rates were relatively high, with the majority citing "too old" or "poor general condition" as reasons for nonadherence. Several indicators evaluate the optimization of using paclitaxel plus carboplatin (TC) or this combination with bevacizumab as first-line chemotherapy. Bevacizumab for early stages showed improvement in progression-free survival in ICON7,[17] but Japanese insurance only covers combination therapy for advanced stages (ov9) because of concerns about increased adverse events, including hypertension and gastrointestinal tract perforation. Clinicians showed good compliance with chemotherapy for malignant germ cell tumors. Table S2 shows that the population unable to adhere to this treatment was individuals over 50 years old, at high risk of severe adverse events.

Ov11 was about HRT after surgical treatment. Patients undergoing bevacizumab maintenance therapy were excluded because of concerns about concurrently administering bevacizumab and estrogen, both carrying thrombosis risks. This indicator had the lowest adherence

TABLE 3 Adherence rates for pattern-of-care items (PCIs).

	PCI	Target patients (number)	Specified care (number)	Adherence rate (%)	SD (95% CI)
Surgical management	ov1x	Additional laparotomy after laparoscopic surgery			
		Ovarian cancer patients with laparoscopic surgery ($n = 185$)	Patients with additional laparotomy the day after laparoscopic surgery ($n = 68$)	36.8	48.3 (29.8–44.1)
	ov2x	Intraoperative frozen section analysis during first surgery			
		Patients who had surgery for ovarian borderline tumor or ovarian cancer younger than 70 years (except staging laparoscopic surgery) ($n = 5855$)	Patients with intraoperative frozen section analysis ($n = 3668$)	62.6	48.4 (61.4–63.9)
Chemotherapy and its management	ov3x	Combination of bevacizumab and TC regimen[a] as first-line chemotherapy for Stage III and IV patients			
		Stage III and IV ovarian cancer patients with first-line chemotherapy (except bevacizumab) ($n = 1919$)	Administering bevacizumab ($n = 777$)	40.5	49.1 (38.3–42.7)
	ov4x	Avoiding chemotherapy for Stage I and II ovarian borderline tumor			
		Patients diagnosed with ovarian borderline malignant tumor ($n = 1788$)	Those who were not administered any chemotherapy ($n = 1726$)	96.5	18.3 (95.6–97.3)
	ov5x	Usage of NK1 inhibitor[b] with carboplatin administration			
		Patients whose chemotherapy regimen contains carboplatin ($n = 4925$)	Usage of phosaprepitant or aprepitant ($n = 3385$)	68.7	46.4 (67.4–70.0)

[a]TC regimen: paclitaxel + carboplatin regimen.
[b]NK1 inhibitor: neurokinin 1 inhibitor.

rate (22.6%). Notably, 20 (3.3% nonadherent) patients in the "other" category underwent fertility preservation surgery. They were included because DPC surgical codes did not distinguish fertility-preserving and conventional resection. HRT does not increase recurrence and improves overall survival in Caucasians.[18,19] Given this proven efficacy and safety, the low adoption rate of HRT is a global concern. Rauh et al. sounded an alarm about the 48.0% HRT initiation rate following iatrogenic menopause,[20] but our results indicated an even lower rate. However, the rate of clear cell ovarian carcinoma is higher in the Japanese population, with unique characteristics,[21] and the risk for recurrence and other indicators have not been evaluated in this group. Japanese guidelines therefore only recommend HRT for patients with symptoms or aged <45 years, where benefits are deemed more likely than for older patients. Before promoting the widespread use of HRT, further examination of its safety in the Japanese population is desirable.

Our study had several limitations. First, the database includes only care provided at registered hospitals. Tests and treatments administered in other hospitals are not captured in the data. However, this data limitation was not frequently addressed in the reasons for nonadherence. Second, approximately 70% of invited designated cancer care hospitals across Japan participated in this study, and the result may therefore skew toward better adherence than the Japanese average. The reasons for nonadherence were also only provided by a subset of the hospitals, and only motivated hospitals participated because of the substantial burden involved in reviewing reasons. This limits the generalizability of the results. Finally, the indicators were developed through a standardized process of RAND/UCLA appropriateness methods to ensure consensus among clinical experts and alignment with scientific evidence. However, their validity in terms of outcomes should be examined prospectively. The indicators were also developed in 2020 to reflect current practice standards and health insurance coverage. However, standards of care may change to reflect new research findings and the indicators will require ongoing revision.

In this study, we evaluated Japanese ovarian cancer care practice using a set of process-of-care indicators. Adherence was generally high for treatment indicators, but lower for indicators for diagnosis and HRT after the main treatment. We will continue to assess the quality of ovarian cancer care using quality indicators, to encourage the development of best practice for patients with this condition.

TABLE 4 Reasons for nonadherence to quality indicators (QIs).

	QI	Indicator descriptor	No. of patients	Adherence (%)	Clinical reasons (%)			Nonclinical reasons (%)		
					Comorbidities	Referral	Patient preference	Errors in data	Other	Unknown
Histopathological diagnosis	ov1	Histopathology before neoadjuvant chemotherapy for ovarian cancer patients	118	67.5	3	6	5	0	0	86
	ov2	Histopathology before chemotherapy for ovarian cancer patients without surgical intervention	54	61.8	15	9	7	0	0	69
Management of thrombosis	ov3	D-dimer test or lower-extremities venous ultrasonography before intervention	379	78.7	2	2	0	6	3	87
	ov4	Administration of anticoagulant in perioperative period	244	84.9	6	1	0	1	2	90
Chemotherapy	ov6	Adjuvant chemotherapy for Stage II, III, and IV after surgical intervention	117	84.2	27	9	22	0	6	26
	ov7	Administering TC regimen[a] or dd-TC regimen[b] as first-line chemotherapy	159	88.2	37	2	2	1	48	24
	ov8	Bevacizumab maintenance therapy for Stage III and IV patients with TC + bevacizumab combination therapy	88	62.5	25	0	6	3	19	46
Chemotherapy (non-recommended indicator)	ov9	Avoiding combination of bevacizumab and TC regimen as first-line chemotherapy for Stage I and II patients	46	8.2	0	0	7	0	13	78
	ov10	Avoiding unconventional chemotherapy for mucinous cell carcinoma and clear cell carcinoma	30	6.4	54	3	0	0	7	33
Post-treatment	ov11	Estrogen replacement within 6 months of surgical intervention	182	22.6	4	2	5	0	10	78

Note: No detailed analysis for ov5 because there were fewer than 10 responses.
[a]TC regimen: paclitaxel + carboplatin regimen.
[b]dd-TC regimen: dose-dense TC regimen.

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DATA AVAILABILITY STATEMENT

The data gathered for this study is detail enough to detect each patient, thus is not publicly available.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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