



## Japan Society of Gynecologic Oncology guidelines 2015 for the treatment of ovarian cancer including primary peritoneal cancer and fallopian tube cancer

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**Abstract** The fourth edition of the Japan Society of Gynecologic Oncology guidelines for the treatment of ovarian cancer including primary peritoneal cancer and fallopian tube cancer was published in 2015. The guidelines contain seven chapters and six flow charts. The major changes in this new edition are as follows—(1) the format has been changed from reviews to clinical questions (CQ), and the guidelines for optimal clinical practice in Japan are now shown as 41 CQs and answers; (2) the ‘flow charts’ have been improved and placed near the beginning of the guidelines; (3) the ‘basic points’, including tumor staging, histological classification, surgical procedures, chemotherapy, and palliative care, are described before the chapter; (4) the FIGO surgical staging of ovarian cancer, fallopian tube cancer, and primary peritoneal cancer was revised in 2014 and the guideline has been revised accordingly to take

the updated version of this classification into account; (5) the procedures for examination and management of hereditary breast and ovarian cancer are described; (6) information on molecular targeting therapy has been added; (7) guidelines for the treatment of recurrent cancer based on tumor markers alone are described, as well as guidelines for providing hormone replacement therapy after treatment.

**Keywords** Guideline · Ovarian cancer · Primary peritoneal cancer · Fallopian tube cancer · Japan Society of Gynecologic Oncology

### Introduction

The number of patients with ovarian cancer is increasing in Japan and 8,631 cases were reported in 2007 [1]. Deaths due to ovarian cancer are also increasing and 4,705 patients died of this disease in 2011 [1]. Ovarian cancer is the most

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**Table 1** Criteria for evaluating the quality of evidence (levels of evidence)

Level I	Evidence from meta-analyses of multiple randomized controlled trials
Level II	Evidence from randomized controlled trials, or evidence from well-designed nonrandomized controlled trials
Level III	Evidence from well-designed quasi-experimental studies, or evidence from well-designed non-experimental descriptive studies, such as comparative studies, correlation studies, and case-control studies
Level IV	Expert committee reports and opinions, or clinical experiences of respected authorities

common cause of death among malignant tumors of the female genital tract. Tumor stage is thought to be an important prognostic factor, with stage III and IV cancer having a poor prognosis [2]. Since the ovary is a pelvic organ, an ovarian tumor may not cause any early symptoms, and approximately 40–50 % of patients with ovarian cancer have stage III or IV disease (with a poor prognosis) at the time of first presentation [3]. Thus, an important challenge is to improve the outcome of treatment in patients with advanced ovarian cancer.

In order to improve the prognosis of ovarian cancer and reduce regional differences in the management of ovarian cancer in Japan, the first edition of the guidelines for the treatment of ovarian cancer was published by the Japan Society of Gynecologic Oncology in 2004. It has since been revised several times, and the fourth edition was published in April 2015. The new guidelines include seven chapters and six flow charts. The major changes in the new edition are as follows:

- (1) The format has been changed from a review format to a clinical question (CQ) format, so the guidelines for optimal clinical practice in Japan are now shown as 41 CQs and answers.
- (2) The ‘flow charts’ have been improved and are placed near the beginning of the guideline.
- (3) The ‘basic points’, including staging, histological classification, surgical procedures, chemotherapy, and palliative care are included before the chapter.
- (4) The FIGO surgical staging of ovarian cancer, fallopian tube cancer, and primary peritoneal cancer was revised in 2014 and the guideline has been revised accordingly to take the updated version of this classification into account.
- (5) Procedures for the examination and management of hereditary breast and ovarian cancer (HBOC) are described.
- (6) Information on molecular targeting therapy has been added.
- (7) Guidelines for the treatment of recurrent cancer based on tumor markers alone and for providing hormone replacement therapy (HRT) after treatment are described.

## Chapter 1: Overview

The aims of this guideline are to describe current optimal treatment for ovarian cancer (epithelial tumors, germ cell tumors, and sex cord stromal tumors), primary peritoneal cancer, and fallopian tube cancer, to reduce differences in management between medical institutions, to improve the safety of therapy and the prognosis, to reduce the burden (physical, mental, and economic) on patients by promoting optimal treatment, and to improve communication between patients and healthcare professionals.

Much of the evidence adopted in this guideline was obtained from clinical studies performed in Europe, the USA, and Japan. However, some evidence from Europe and the USA does not apply in Japan because of differences in background factors between Europe/USA and Japan. Conversely, some treatments used widely in Japan are uncommon in Europe and the USA. In such cases, the current consensus for disease management in Japan is prioritized in this guideline.

This guideline was created according to the principles of ‘evidence-based medicine’, which is a standard method for producing clinical practice guidelines. The quality of evidence was evaluated using the criteria shown in Table 1 [4, 5]. In addition, the grade of each recommendation in the guideline was determined using the criteria set out in Table 2 [4–6].

## Chapter 2: Epithelial ovarian cancer

Treatment of epithelial ovarian cancer is summarized as flow chart 1 (Fig. 1).

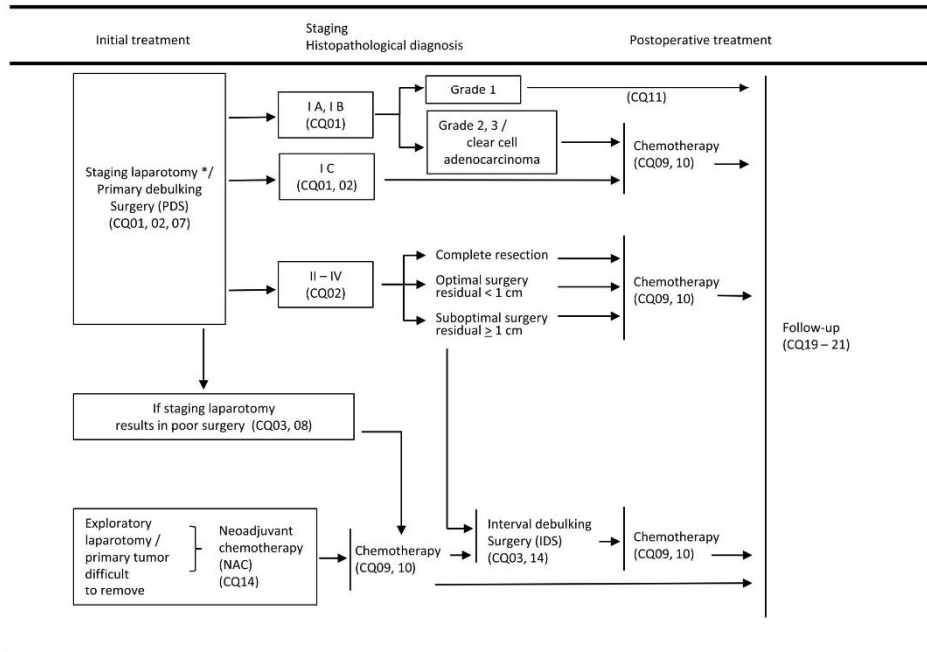
### CQ 01: What is the optimal surgical procedure for ovarian cancer when the tumor seems to be localized to the ovary?

#### Recommendations

- (1) In addition to bilateral salpingo-oophorectomy + total hysterectomy + omentectomy, peritoneal cytol-

**Table 2** Grading of recommendations

Grade A	The proposed treatment is strongly recommended In principle, there is at least one source of Level I evidence showing efficacy of the treatment
Grade B	The proposed treatment is recommended In principle, there is at least one source of Level II evidence showing efficacy of the treatment
Grade C1	The proposed treatment may be considered. However, there is not enough scientific evidence (or the treatment may have efficacy, although sufficient scientific evidence has not been obtained) There are multiple sources of Level III evidence showing efficacy of the treatment and the outcomes are roughly consistent
Grade C2	There is not enough scientific evidence, and the treatment is not recommended in routine clinical practice
Grade D	The treatment is not recommended (usefulness or efficacy have not been shown, and the treatment may be harmful)



**Fig. 1** Flow chart 1: treatment of epithelial ovarian cancer. \*Staging laparotomy—bilateral salpingo-oophorectomy + total hysterectomy + omentectomy + peritoneal cytology + pelvic/para-aortic lymph node dissection (biopsy) + biopsies from sites in the abdominal cavity

ogy + pelvic/para-aortic lymph node dissection (biopsy) + biopsies from sites in the abdominal cavity are recommended (Grade B).

- (2) When biopsies are obtained from sites in the abdominal cavity, sampling from the following sites should be considered—pouch of Douglas, parietal peritoneum, surface of the diaphragm, intestinal tract, mesentery, and suspected lesions (Grade C1).

**CQ 02: What is the optimal surgical procedure for ovarian cancer that is thought to be stage II or a more advanced stage preoperatively?**

*Recommendations*

Maximal debulking surgery to accomplish complete resection (no gross residual tumor) is strongly recommended (Grade A).

**CQ 03: Is interval debulking surgery (IDS) recommended for advanced ovarian cancer if primary debulking surgery (PDS) had a suboptimal outcome?**

*Recommendations*

As a treatment option, IDS should be considered during chemotherapy for patients with advanced cancer if previous surgery had a suboptimal outcome (Grade C1).

**CQ 04: What is the optimal management if a patient wishes to preserve fertility?**

*Recommendations*

- (1) Detailed informed consent about preservation of fertility is necessary (Grade A).
- (2) As the basic operative procedure to preserve fertility, affected-side salpingo-oophorectomy + omentectomy + peritoneal cytology is recommended (Grade B).
- (3) In addition to the above-mentioned basic procedure, biopsy of the contralateral ovary, biopsy (dissection) of the pelvic/para-aortic lymph nodes, and biopsies from sites in the abdominal cavity should be considered as part of staging laparotomy (Grade C1).

**CQ 05: Is risk-reducing salpingo-oophorectomy (RRSO) recommended for patients with the *BRCA1* or *BRCA2* gene mutation?**

*Recommendations*

It is recommended that RRSO only be performed by a gynecologic oncologist who is a member of the Japan Society of Gynecologic Oncology in cooperation with a clinical geneticist at a medical facility with an established genetic counseling system and cooperative pathologists, after review and approval by the institutional ethics committee (Grade B).

**CQ 06: Is laparoscope-assisted surgery possible?**

*Recommendations*

- (1) Currently, laparoscope-assisted surgery is not recognized as a standard procedure that can be substituted for laparotomy (Grade C2).
- (2) However, in patients with advanced cancer, laparoscope-assisted surgery may be substituted for laparot-

omy to observe the abdominal cavity and collect tissue samples (Grade C1).

**CQ 07: For which patients is intraoperative rapid pathological examination recommended?**

*Recommendations*

For patients in whom judgment between benign/borderline malignancy/malignancy is difficult based on preoperative evaluation and intraoperative findings, intraoperative rapid pathological examination is recommended for selecting the optimal surgical procedure (Grade B).

**CQ 08: What is the recommended management of a patient in whom ovarian cancer is diagnosed after surgery?**

*Recommendations*

Staging laparotomy (re-laparotomy) is recommended (Grade B).

**CQ 09: What chemotherapy regimen is recommended as first-line therapy?**

*Recommendations*

- (1) Paclitaxel + carboplatin (conventional TC therapy) is strongly recommended (Grade A).
- (2) Dose-dense TC therapy is also recommended (Grade B).

**CQ 10: What chemotherapy regimens other than TC therapy are recommended as first-line therapy?**

*Recommendations*

- (1) Docetaxel + carboplatin (DC therapy) is recommended (Grade B).
- (2) Cisplatin monotherapy or carboplatin monotherapy can be considered (Grade C1).

**CQ 11: Which patients do not need postoperative chemotherapy?**

*Recommendations*

It can be omitted for patients with stage I A/I B, Grade 1 disease confirmed by staging laparotomy (Grade B).

**CQ 12: Should first-line chemotherapy be selected by considering tumor histology?***Recommendations*

This is not recommended because there is insufficient evidence to show that standard treatment should be changed depending on tumor histology (Grade C2).

**CQ 13: Is intraperitoneal chemotherapy recommended as the first-line therapy?***Recommendations*

Intraperitoneal chemotherapy should be considered for patients with advanced cancer who have undergone optimal surgery (Grade C1).

**CQ 14: Are neoadjuvant chemotherapy (NAC) and IDS recommended for advanced ovarian cancer if optimal surgery is thought to be impossible?***Recommendations*

For patients with advanced cancer in whom it is thought that primary surgery will not result in an optimal outcome, preoperative chemotherapy and debulking surgery (NAC + IDS) are recommended as a treatment option (Grade B).

**CQ 15: Is maintenance chemotherapy recommended after complete remission is achieved?***Recommendations*

It is not recommended, because usefulness of maintenance chemotherapy has not been demonstrated (Grade C2).

**CQ 16: What management approach is recommended if complete remission is not achieved by initial treatment?***Recommendations*

Additional treatment (second-line chemotherapy and radiotherapy), participation in a clinical trial, or best supportive care should be considered (Grade C1).

**CQ 17: What is the recommended management of serious adverse events associated with chemotherapy?***Recommendations**Hypersensitivity reactions (HSR)*

- (1) Premedication should be provided because taxanes, such as paclitaxel, are associated with a risk of HSR (Grade A).
- (2) When carboplatin causes HSR, premedication alone cannot reduce the risk of recurrence. Therefore, switching to another drug or desensitization therapy should be considered (Grade C1).

*Gastrointestinal symptoms (nausea, diarrhea)*

- (1) For nausea, refer to the relevant guideline [7], and provide adequate antiemetic therapy (Grade A).
- (2) For mild diarrhea, antidiarrheal agents should be administered orally. For severe diarrhea complicated by other symptoms, early aggressive treatment should be performed, such as fluid replacement and administration of an antibacterial agent (Grade A).

*Myelosuppression/febrile neutropenia*

Refer to the relevant guideline [8], and provide adequate treatment with an antibacterial agent and/or a granulocyte-colony stimulating factor (G-CSF) preparation (Grade A).

**CQ 18: Are any molecular targeting drugs recommended as first-line therapy or as treatment for recurrence?***Recommendations*

Bevacizumab should be considered in combination with chemotherapy and as subsequent maintenance therapy. However, careful patient selection and appropriate monitoring for adverse events are required when bevacizumab is used (Grade C1).

**CQ 19: What is the optimal follow-up interval after treatment?***Recommendations*

After the start of initial treatment,

Years 1–2: an interval of 1–3 months  
 Years 3–5: an interval of 3–6 months  
 Year 6 onward: an interval of 1 year  
 The above-mentioned intervals are only intended as a guide (Grade C1).

**CQ 20: What examinations/tests should be performed for follow-up after treatment?**

*Recommendations*

- (1) Taking a history and performing a pelvic examination at every visit should be considered (Grade C1).
- (2) Measurement of CA125, transvaginal ultrasonography, or computed tomography scanning should be considered as required (Grade C1).

**CQ 21: Is intervention for recurrence recommended if the patient only has elevation of CA125 without any symptoms?**

*Recommendations*

Early intervention in response to elevation of CA125 alone is not necessarily recommended (Grade C2).

**CQ 22: Is HRT recommended?**

*Recommendations*

After informing the patient about its merits and demerits, HRT should be considered carefully for individual patients (Grade C1).

**Chapter 3: Borderline epithelial ovarian tumors**

Treatment of borderline epithelial ovarian tumors is summarized as flow chart 2 (Fig. 2).

**CQ 23: What is the optimal surgical procedure for borderline epithelial ovarian tumors?**

*Recommendations*

- (1) In addition to bilateral salpingo-oophorectomy + total hysterectomy + omentectomy + peritoneal cytology,

detailed intra-abdominal examination is recommended (Grade B).

- (2) If suspected peritoneal lesions are found by intra-abdominal examination, removing such lesions should be considered, or taking peritoneal biopsies from several sites should be considered if there are no suspected peritoneal lesions (Grade C1).
- (3) For patients who wish to preserve fertility, in addition to salpingo-oophorectomy on the affected side + omentectomy + peritoneal cytology, detailed intra-abdominal examination should be considered (Grade C1).

**CQ 24: What are the indications for chemotherapy and the recommended regimens?**

*Recommendations*

For patients with gross residual tumors and patients with invasive peritoneal implants, performing postoperative chemotherapy with platinum agents and taxanes according to the treatment regimens for ovarian cancer should be considered (Grade C1).

**CQ 25: What is important for follow-up after treatment of a borderline epithelial ovarian tumor?**

*Recommendations*

In patients with borderline epithelial tumors, long-term follow-up for at least 10 years after treatment should be considered (Grade C1).

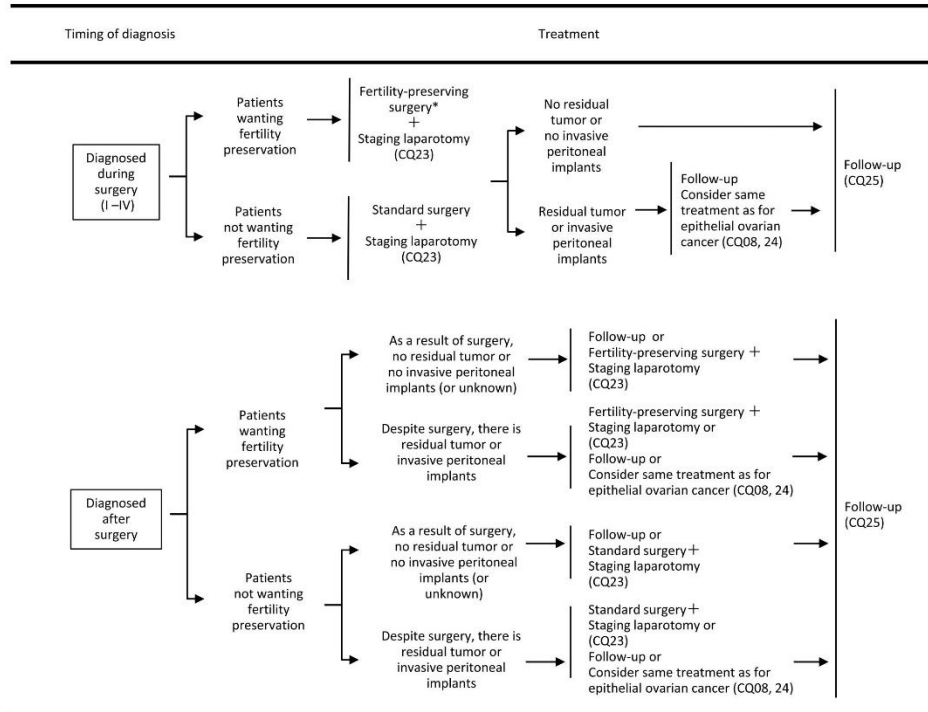
**Chapter 4: Recurrent epithelial ovarian cancer**

Treatment of recurrent ovarian cancer is summarized as flow chart 3 (Fig. 3).

**CQ 26: What chemotherapy regimen is recommended for recurrence after a disease-free interval (DFI) of <6 months?**

*Recommendations*

Monotherapy that avoids cross-resistance to previous treatment is recommended (Grade B).



**Fig. 2** Flow chart 2: treatment of borderline epithelial ovarian tumors. \*Fertility-preserving surgery—affected-side salpingo-oophorectomy + omentectomy + peritoneal cytology + detailed intra-abdominal examination

**CQ 27: What chemotherapy regimen is recommended for recurrence after a DFI of  $\geq 6$  months?**

*Recommendations*

Combination therapy including a platinum agent is strongly recommended (Grade A).

**CQ 28: What are the indications and strategy for secondary debulking surgery (SDS) in patients with recurrence?**

*Recommendations*

- (1) Whether or not SDS is worth performing should be carefully determined by evaluating the timing of recurrence, the primary surgical procedure, the site of recur-

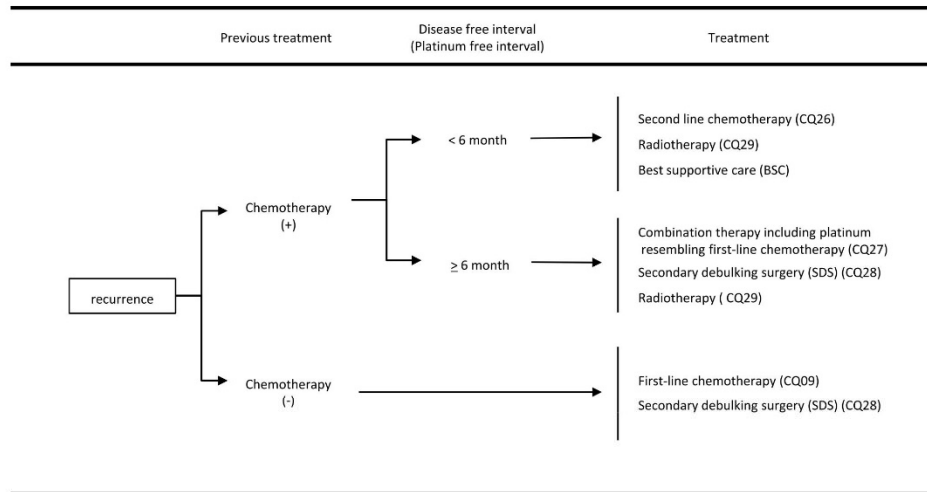
rence, the number of lesions, and the performance status of the patient in a comprehensive manner (Grade C1).

- (2) When SDS is performed, the objective should be complete resection of the tumor when possible (Grade C1).

**CQ 29: What are the indications for radiation therapy in patients with recurrence?**

*Recommendations*

- (1) Radiation therapy should be considered in order to relieve symptoms, such as pain and bleeding (Grade C1).
- (2) Radiation therapy should be considered for brain metastasis, not only to relieve symptoms, but also to prolong survival (Grade C1).



**Fig. 3** Flow chart 3: treatment of recurrent epithelial ovarian cancer

**CQ 30: What is the recommended management strategy for intestinal obstruction and accumulation of ascites?**

*Recommendations*

*Intestinal obstruction*

- (1) Administration of octreotide is strongly recommended for nausea/vomiting (Grade A).
- (2) Correcting physical obstruction by palliative surgery is recommended for relieving nausea/vomiting (Grade B).
- (3) Administration of corticosteroids should be considered to relieve nausea/vomiting (Grade C1).

*Accumulation of ascites*

- (1) In patients with terminal cancer whose life expectancy is estimated to be  $\leq 1$ –2 months, the volume of infusion solution should be limited to  $\leq 1,000$  mL/day if the patient has pain due to accumulation of ascites (Grade C1).
- (2) Taking the underlying pathological state into consideration, administration of diuretics, drainage of ascitic fluid (paracentesis), creation of a peritoneovenous shunt, and cell-free and concentrated ascites reinfusion

therapy should be considered for relieving pain due to accumulation of ascites (Grade C1).

**Chapter 5: Primary peritoneal cancer/fallopian tube cancer**

Treatment of primary peritoneal cancer or fallopian tube cancer is summarized as flow chart 4 (Fig. 4).

**CQ 31: What is the optimal surgical procedure for primary peritoneal cancer?**

*Recommendations*

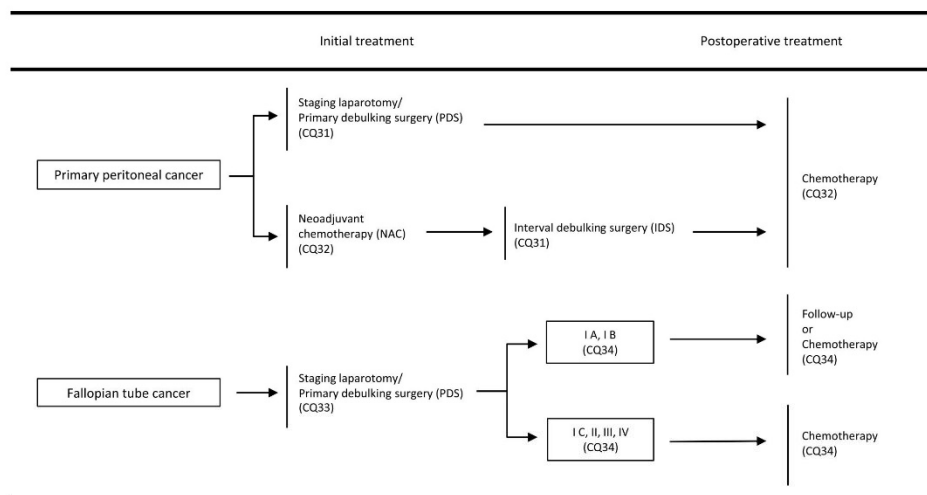
Maximal debulking surgery to accomplish complete resection (no gross residual tumor) should be considered (Grade C1).

**CQ 32: What chemotherapy regimen is recommended for primary peritoneal cancer?**

*Recommendations*

- (1) Either conventional TC therapy or dose-dense TC therapy should be considered (Grade C1).





**Fig. 4** Flow chart 4: treatment of primary peritoneal cancer and fallopian tube cancer

- (2) Neoadjuvant chemotherapy should also be considered (Grade C1).

**CQ 33: What is the optimal surgical procedure for fallopian tube cancer?**

*Recommendations*

- (1) According to the procedure for treating ovarian cancer, bilateral salpingo-oophorectomy + total hysterectomy + omentectomy are recommended together with peritoneal cytology + pelvic/para-aortic lymph node dissection (biopsy) + biopsies from sites in the abdominal cavity (Grade B).
- (2) Maximal debulking surgery to accomplish complete resection (no gross residual tumor) is recommended for patients with advanced cancer (Grade B).

**CQ 34: What chemotherapy regimen is recommended for fallopian tube cancer?**

*Recommendations*

Conventional TC therapy or dose-dense TC therapy should be considered (Grade C1).

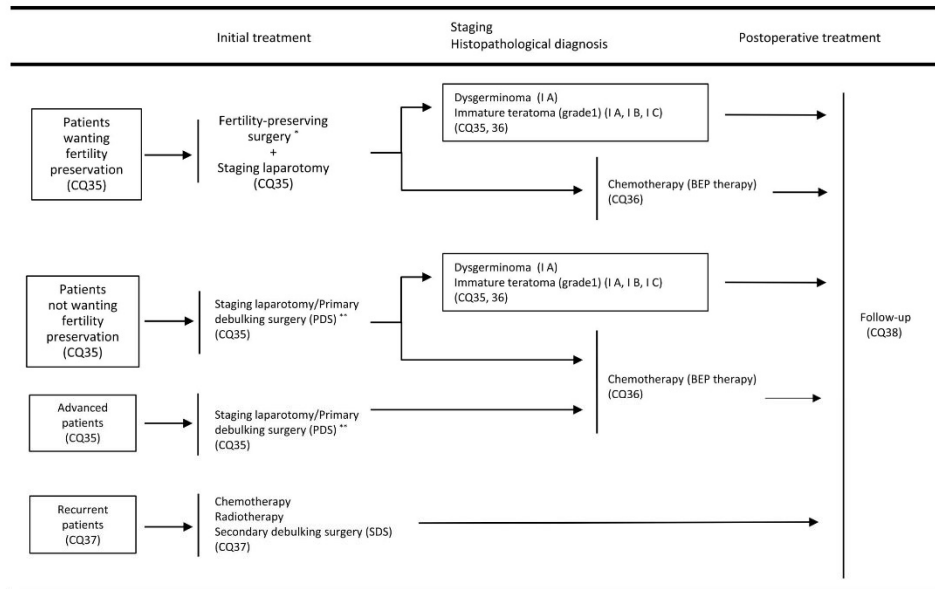
**Chapter 6: Malignant ovarian germ cell tumors**

Treatment of malignant ovarian germ cell tumors is summarized as flow chart 5 (Fig. 5).

**CQ 35: What is the optimal surgical procedure for malignant ovarian germ cell tumors?**

*Recommendations*

- (1) For patients who wish to preserve fertility, in addition to salpingo-oophorectomy on the affected side + omentectomy + peritoneal cytology, detailed intra-abdominal examination is recommended (Grade B).
- (2) For patients who do not require preservation of fertility, according to the procedure for treating ovarian cancer, bilateral salpingo-oophorectomy + total hysterectomy + omentectomy are recommended together with peritoneal cytology, pelvic/para-aortic lymph node dissection (biopsy), and biopsies from sites in the abdominal cavity. However, lymph node dissection (biopsy) can be omitted (Grade B).
- (3) For patients with advanced cancer, maximal debulking surgery to accomplish complete resection (no



**Fig. 5** Flow chart 5: treatment of malignant germ cell tumors. \*Fertility-preserving surgery—affected-side salpingo-oophorectomy + omentectomy + peritoneal cytology + detailed intra-abdominal examination. \*\*Lymph node dissection (biopsy) can be omitted

gross residual tumor) is recommended. However, lymph node dissection (biopsy) can be omitted (Grade B).

**CQ 36: What postoperative treatment is recommended for malignant ovarian germ cell tumors?**

*Recommendations*

Chemotherapy using bleomycin, etoposide, and cisplatin (BEP therapy) is strongly recommended (Grade A).

**CQ 37: What treatment is recommended for recurrence of malignant ovarian germ cell tumors after first-line chemotherapy?**

*Recommendations*

- (1) Combination chemotherapy using cisplatin, such as a triple-drug combination of cisplatin with two other drugs (from among ifosfamide, etoposide, vinblastine, and/or paclitaxel), should be considered (Grade C1).
- (2) SDS can be considered for some patients (Grade C1).

**CQ 38: What should be kept in mind during follow-up after treatment of malignant ovarian germ cell tumors?**

*Recommendations*

- (1) You should be mindful that ovarian dysfunction may occur (Grade C1).
- (2) When etoposide has been administered, you should consider that secondary cancer may occur (Grade C1).

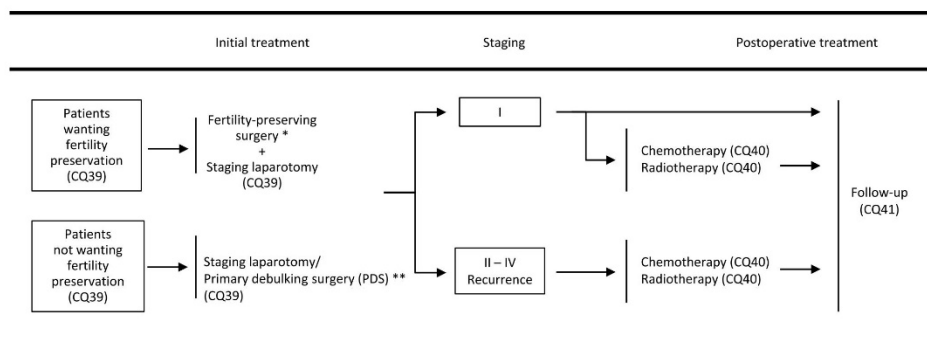
**Chapter 7: Malignant sex cord-stromal tumors**

Treatment of malignant sex cord-stromal tumors is summarized as flow chart 6 (Fig. 6).

**CQ 39: What is the optimal surgical procedure for malignant sex cord-stromal tumors?**

*Recommendations*

- (1) According to the procedure for treating ovarian cancer, bilateral salpingo-oophorectomy + total hysterectomy



**Fig. 6** Flow chart 6: treatment of malignant sex cord-stromal tumors. \*Fertility-preserving surgery—affected-side salpingo-oophorectomy + omentectomy + peritoneal cytology + detailed intra-abdominal examination. \*\*Lymph node dissection (biopsy) can be omitted

tomy + omentectomy are recommended together with peritoneal cytology, pelvic/para-aortic lymph node dissection (biopsy), and biopsies from sites in the abdominal cavity. However, lymph node dissection (biopsy) can be omitted (Grade C1).

- (2) For patients who wish to preserve fertility, in addition to affected-side salpingo-oophorectomy + omentectomy + peritoneal cytology, detailed intra-abdominal examination should be considered (Grade C1).

#### **CQ 40: What postoperative treatment is recommended for malignant sex cord-stromal tumors?**

##### *Recommendations*

- (1) With regard to chemotherapy, a platinum-containing regimen should be considered (Grade C1).
- (2) Radiotherapy should also be considered (Grade C1).

#### **CQ 41: What is important during follow-up after treatment of malignant sex cord-stromal tumors?**

##### *Recommendations*

Management should be performed according to the protocol for ovarian cancer. Additionally, long-term follow-up for at least 10 years after treatment should be considered for granulosa cell tumors (Grade C1).

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**Conflict of interest** The conflict-of-interest committee of the Japan Society of Gynecologic Oncology checked conflicts of interest for the people involved in creating and evaluating this guideline and their associates (i.e., marital partner, first-degree relatives, or people sharing income/assets), according to the “Guidelines for conflict of interest issues in clinical studies on cancer” (<http://www.jsgo.or.jp/topics/index01.html>) published by the Japan Society of Gynecologic Oncology. Although there were conflicts of interest for some contributors through research/lecture activities supported by companies, the recommendations in this guideline are based on scientific evidence and have not been influenced by the interests of a specific organization and are not biased in recommending or products or techniques.

#### **Guidelines for treatment of ovarian cancer including primary peritoneal cancer and fallopian tube cancer 2015 (4th edition)**

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