Recommendations for gynecologic cancer care during the COVID-19 pandemic

The standard of care in gynecologic cancers has been inevitably hampered by the coronavirus disease 2019 (COVID-19) crisis. As a result, patients and medical staffs are facing unprecedented challenges in treating cancer. This recommendation is intended for clinicians taking care of patients with gynecologic cancers during the pandemic of COVID-19. It is desirable to selectively apply this recommendation in consideration of the hospital's resources and the situation of COVID-19 transmission. We classified the recommendation into three categories, depending on the severity of patient's condition with gynecologic cancers.

This classification has been modified referring to the clinical guidelines from Ontario Health.

Priority A: The patient's condition is life-threatening or needs emergency care.

Priority B: The patient's condition is non-life threatening and could be deferred 6–8 weeks during the COVID-19 pandemic.

Priority C: The patient's condition is stable even in the discontinuation of treatment during the current COVID-19 crisis.

Table 1. Cervical cancer

Priority (A or B or C)	Patient's status	Management
	New diagnosis or screening test	
A	Massive and/or persistent bleeding from cervix	Assessment should be performed as soon as possible based on the level of institution resources or regional circumstances of COVID-19
C	Routine screening	It is preferable to discontinue all routine check-up during COVID-19 pandemic or consider to refer to accessible local clinic
	Abnormal Pap result	
B	Suspected of low-grade cervical disease	Assessment could be deferred up to 6–12 months
B	Suspected of high-grade cervical disease without invasive cancer	It is appropriate to evaluate lesions within 3 months
B	Suspected of invasive cervical cancer	Diagnosis of the lesion could be prioritized within 2 weeks

	Early-stage cervical cancer	
C	Stage IA1 based on LLETZ pathology	It might be possible to observe the lesion without further treatment until COVID-19 outbreak wanes
B	Stage IA2 based on LLETZ pathology	It could be postponed to perform further treatment up to 6–8 weeks
B	Stage IB1, IB2, and IIA1	Radical hysterectomy can be postponed up to 6–8 weeks and can be replaced by alternatives such as trachelectomy, neoadjuvant chemotherapy, or radiation therapy in consideration of fertility preservation, operation morbidity, and patient condition
C	Postoperative status - low risk of recurrence	Adjuvant therapy might be discontinued during the crisis of COVID-19
B	Postoperative status - intermediate risk of recurrence	(CC)RT can be deferred up to 8 weeks after surgery in consideration of risk of Sedlis criteriae
B	Postoperative status - high risk of recurrence	It is preferable to perform CCRT on schedule
B	Stage IB3, and IIA2	It is appropriate to perform EBRT using hypofractionation to reduce the number of visit to clinic. Radical hysterectomy can be chosen on the decision of physician.
B	Locally advanced cervical cancer (IIB–IVA)	CCRT is recommended on schedule, and could consider hypofractionation to reduce the number of visit to clinic. Brachytherapy should be done on time unless there is COVID-19 symptom.
B	Stage IVB cervical cancer	It is preferable to perform chemotherapy consisting of cisplatin and paclitaxel, (+/−) bevacizumab on schedule.
	Recurrent cervical cancer	
B	Cervical stump recurrence	Surgical resection or radiation therapy can be considered according to the level of institutional resources on schedule
B	Vaginal recurrence with bleeding	It is recommended to perform brachytherapy or EBRT on schedule
B	Local recurrence within pelvis	(CC)RT is recommended on schedule, and could consider hypofractionation to reduce the number of visit to clinic. Brachytherapy should be done on time unless there is COVID-19 symptom.
B	Distant recurrence - chest only	Chemotherapy is recommended on schedule, but it can be deferred for several week in case of no adverse effect caused by the delay of treatment

B	Distant multiple recurrence	Chemotherapy is recommended on schedule, but it can be deferred for several week in case of no adverse effect caused by the delay of treatment
B	Pelvic side wall recurrence	Ultra-radical surgery or radiation could be recommended according to the level of institution resources
	Follow-up	
C	Follow-up after curative operation	Surveillance can be deferred based on the level of risk for recurrence
C	Follow-up after curative radiation	Surveillance can be deferred based on the level of risk for recurrence
	Special situation	
B	Occult cervical cancer after simple hysterectomy	The treatment can be chosen among observation, surgery, or radiation after pathologic review. It can be deferred for several week in case of no adverse effect caused by delay of treatment
C	Condition requiring palliative treatment	The treatment can be postponed after consultation with multidisciplinary team
A	Serious toxicity (i.e. fever, pain, dyspnea, bowel perforation, and unstable vital sign)	Immediate management of toxicity should be required as soon as possible even in the circumstances of COVID-19 pandemic
B	Neutropenia	Administration of hematologic growth factor is recommended as quickly as possible

COVID-19, coronavirus disease 2019; LLETZ, large loop excision of the transformation zone; CCRT, concurrent chemoradiation therapy; EBRT, external beam radiotherapy.

Table 2. Endometrial cancer

Priority (A or B or C)	Patient status description	Management
	Diagnostic approach	
A	Vaginal bleeding, suspicious uterine pathology	In case of clinically significant AUB, office-based endometrial biopsy should be performed in outpatient setting based on the level of institution resources or regional circumstances of COVID-19
	Premalignant disease	
B	EIN, wants preserving fertility	Start conservative treatment such as oral progestin and LNG-IUD

B	EIN, not wants preserving fertility	Simple hysterectomy might be postponed up to 8 weeks. Conservative treatment such as oral progestin and LNG-IUD can be applied alternatively until the pandemic is over.
	Surgical staging	MIS approach with SLN mapping is recommended because it confers fast recovery and less complication, and accurate nodal staging
A	Surgical staging in patients with active bleeding	Staging operation with hysterectomy should be performed as soon as possible.
B	Surgical staging in patients without active bleeding	Staging operation can be delayed up to 8 weeks.
B	Clinical stage IA, grade I	Conservative treatment such as oral progestin and LNG-IUD can be applied alternatively until the pandemic is over.
	Adjuvant treatment	Adjuvant treatment can be deferred up to 9 weeks after surgery.
C	Surgical stage I, II with low risk factor	Adjuvant therapy might be discontinued during the crisis of COVID-19
B	Surgical stage I, II with intermediate to high risk factors	Brachytherapy is preferred considering fewer visit and less complication risk
B	Surgical stage III	Depending on the discretion of the physician, adjuvant chemotherapy or radiotherapy is considered. Use chemotherapy regimens that will avoid frequent patient visits (e.g. paclitaxel + carboplatin). In case of pelvic RT, consider hypofractionation to reduce the number of visit to clinic.
B	Surgical stage IVa	Depending on the discretion of the physician, adjuvant chemotherapy or radiotherapy is considered. Use chemotherapy regimens that will avoid frequent patient visits (e.g. paclitaxel + carboplatin). In case of pelvic RT, consider hypofractionation to reduce the number of visit to clinic.
	Inoperable condition	
B	Inoperable clinical stage III	Chemotherapy is recommended on schedule. Use chemotherapy regimens that will avoid frequent patient visits (e.g. paclitaxel + carboplatin)
B	Inoperable clinical stage IV	Chemotherapy is recommended on schedule. Use chemotherapy regimens that will avoid frequent patient visits (e.g. paclitaxel + carboplatin)

B	Stage IVb	Chemotherapy is recommended on schedule. Use chemotherapy regimens that will avoid frequent patient visits (e.g. paclitaxel + carboplatin)
	Follow-up	Routine imaging study is not recommended until the pandemic is over
C	Follow-up after primary treatment	Surveillance can be deferred based on the level of risk for recurrence
	Recurrent disease	Choice of therapy should minimize exposure to other contacts, risk from therapy, and prognosis.
B	Isolated vaginal recurrence	Brachytherapy is recommended on schedule, but it can be deferred for several week in case of no adverse effect caused by delay of treatment
B	Pelvic recurrence	RT is recommended on schedule, and consider hypofractionation to reduce the number of visit to clinic.
B	Distant recurrence with symptom	Chemotherapy is recommended on schedule. Use chemotherapy regimens that will avoid frequent patient visits
C	Distant recurrence without symptom	Consider hormonal treatment Use chemotherapy regimens that will avoid frequent patient visits
B	Second or more line chemotherapy after recurrence	Consider hormonal treatment Use chemotherapy regimens that will avoid frequent patient visits

AUB, abnormal uterine bleeding; COVID-19, coronavirus disease 2019; EIN, endometrial intraepithelial neoplasia; LNG-IUD, levonorgestrel-releasing intrauterine device; MIS, minimally invasive surgery; SNL, sentinel lymph node; RT, radiation therapy.

Table 3. Epithelial ovarian cancer

Priority (A or B or C)	Patient status description	Management
	Newly diagnosed ovarian cancer	
A	Suspected ovarian cancer with symptoms indicating bowel obstruction/perforation, massive ascites, or peritonitis	Assessment should be performed as soon as possible.
B	Suspected ovarian cancer with no symptom and looks confined to pelvis	For presumed early stage ovarian cancer according to salpingo-oophorectomy, restaging surgery can be deferred from 6–8 weeks.
B	Suspected ovarian cancer with no symptom and looks spread beyond pelvis	Delaying interval debulking surgery beyond 3–4 cycles of neoadjuvant chemotherapy should be considered.

		Choose regimens scheduled with the fewest infusion visits. Consider lower dosing intensity and less myelosuppressive regimens to reduce neutropenia. Avoid the prescription of dose-dense, intraperitoneal, and HIPEC regimens.
B	After 3 cycles neoadjuvant chemotherapy in suspected advanced stage ovarian cancer	Consider extending the chemotherapy plan to 6 cycles before the interval cytoreductive surgery in women who have already started neoadjuvant chemotherapy.
A	Suspected postoperative complications (e.g. anastomotic leak)	Assessment should be performed as soon as possible.
B	Incidentally found ovarian cancer	For presumed early stage ovarian cancer according to salpingo-oophorectomy, restaging surgery can be deferred from 6–8 weeks. If residual suspected, reoperation should be performed.
	Early stage (I–IIA) ovarian cancer requiring postoperative adjuvant chemotherapy	
A	High-grade serous/endometrioid	Adjuvant chemotherapy should be performed as soon as possible.
B	Non-high-grade serous/endometrioid	Adjuvant chemotherapy can be an option, but should be considered less essential and discussed with the patient about minimizing the infusion visits.
	Adjuvant chemotherapy in advanced stage ovarian cancer	
A	High-grade serous/endometrioid	Adjuvant chemotherapy should be performed as soon as possible.
A	High-grade serous with *BRCA* mutation	In patients who have a *BRCA* mutation and are PARP naïve, consider rucaparib monotherapy in situations where platinum therapy cannot be given.
B	Clear cell or mucinous tumours	Adjuvant chemotherapy can be an option, but should be considered less essential and discussed with the patient about minimizing the infusion visits.
C	Low-grade serous tumours	Consider deferring the adjuvant therapy as possible.
C	After upfront adjuvant chemotherapy	Consider deferring the maintenance chemotherapy as possible. If utilizing PARP inhibitor maintenance therapy,

		consider the risk of the immunosuppression and exposure to COVID-19 during infusion.
	Follow-up visit	Routine surveillance of asymptomatic patients should be postponed as possible. Utilize telemedicine and reduce the frequency of in-person evaluation.
C	Patients with PARP inhibitor maintenance	Most can be managed through telemedicine with scheduled blood tests and imaging done close to home.
C	Patients with bevacizumab maintenance	If facilities available to continue, supervision can be performed by telemedicine, ensuring BP and urinalysis are monitored.
	Recurrent disease	Choice of therapy should minimize exposure to other contacts, risk from therapy, and prognosis.
B	Symptomatic Plt-sensitive recurrent disease	Adjuvant chemotherapy can be an option, but should be considered less essential and discussed with the patient about minimizing the infusion visits.
C	Symptomatic Plt-resistant recurrent disease	Non platinum-based regimen are low priority and should be used after careful review of the risk/benefit.
C	Symptomatic slowly growing recurrent disease	Decision should be based on clinical judgement.
C	Asymptomatic recurrent disease	Decision should be based on clinical judgement.
	Special situation	
C	Risk-reducing salpingo-oophorectomy for genetic predisposition to gynaecological cancer	Consider deferring the surgery as possible.

HIPEC, hyperthermic intraperitoneal chemotherapy; PARP, poly (ADP-ribose) polymerase.

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