Palliative Chemotherapy and the Surgical Oncologist

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KEYWORDS

• Palliative chemotherapy • Advanced cancer • Shared decision-making

KEY POINTS

- The term palliative chemotherapy can encompass a wide range of systemic therapies and possible treatment outcomes for advanced cancer.
- Systemic cancer therapy is evolving rapidly, but some classes have established perioperative risks such as infection, venous thromboembolism, and impaired wound healing.
- When surgery is being considered for advanced cancer, collaborative communication is essential to determine the impacts of systemic cancer therapy on surgical risks and outcomes.
- Following a structured communication framework can ensure that all prognostic, pharmacologic, and surgical issues are incorporated into medical decision-making.

INTRODUCTION

Patients who receive systemic cancer treatments in the setting of advanced disease are often described as receiving palliative chemotherapy, but this term has become increasingly problematic as systemic cancer therapies and advanced cancer outcomes have improved. Now that patients are living longer with cancer as a chronic life-limiting illness, surgeons may be increasingly asked to consider operating on those receiving palliative systemic treatments. In this review, we consider the term palliative chemotherapy and contextualize it based on current treatment paradigms. To facilitate optimally coordinated care between surgical and medical oncologists, we will

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briefly review evidence about perioperative risks associated with select classes of systemic cancer treatments frequently used to treat patients with advanced cancer, and guidelines that surgeons may consider when planning interventions for patients with advanced cancer who are receiving systemic palliative treatments. Finally, a case-based communication framework is provided to enhance perioperative communication between medical and surgical oncologists who are collaborating to care for patients receiving palliative chemotherapy.

BACKGROUND, DEFINITIONS, AND LEXICAL GAPS

Despite widespread use, the term palliative chemotherapy not been consistently defined within the medical community.[1–3] Attempts to refine this terminology[1,2,4] have not generated consensus on the most appropriate or accurate alternatives that integrate the nuanced clinical and prognostic landscape and expanding pharmacologic options for treatment of patients with advanced cancer. Case 1 A illustrates this point.

Case 1A

Jillian Jones is a 56-year-old woman with stage IV colon adenocarcinoma with an isolated liver metastasis. Her functional status is excellent, and she has no comorbidities. She is motivated to receive aggressive cancer treatment. After a tumor board discussion, her medical and surgical oncologists agree that she should be offered chemotherapy with 5-fluorouracil, leucovorin, and oxaliplatin (FOLFOX) with the hope that her disease will become resectable. Four cycles of FOLFOX are recommended to limit hepatotoxicity.

After chemotherapy, her cancer status is reevaluated. Her liver metastasis is now resectable and no new metastatic disease is identified. She is offered resection of her primary colon mass and her liver metastasis.

Question: Is this patient being treated with curative or palliative intent? In this case, was FOLFOX "palliative chemotherapy?"

The word palliative has been used variably in relation to systemic cancer treatments. In some instances, such as the administration of gemcitabine for metastatic pancreatic cancer,[5] palliative has been applied literally, indicating that the treatment was approved based on its ability to improve symptoms and quality of life. In other situations, palliative chemotherapy describes treatment given to patients with advanced cancer without curative intent, with a goal of controlling or shrinking tumors and extending a patient's life, regardless of symptomatic outcomes.[1–3] Given the lack of consensus within the medical community, it is no surprise that patients and providers lack clarity about the intent of palliative chemotherapy.[6]

Further confounding the meaning of palliative chemotherapy, palliative medicine consultation is now recommended concurrently with oncology care for patients with advanced cancer[7] owing to landmark studies demonstrating improved quality of life, mood, goal-concordant care, and other positive outcomes.[8–11] Therefore, patients with advanced cancer may receive both palliative care consultative services and palliative chemotherapy concomitantly. Some experts have suggested abandoning the term palliative chemotherapy in part to prevent patients, caregivers, and health care professionals conflating systemic cancer treatment with specialty palliative care.[2]

Chemotherapy was once a less ambiguous term in oncology, typically referring to conventional cytotoxic agents. Applying a broader definition, with chemotherapy encompassing "any chemical agent or drug[12]" used to treat cancer, systemic treatments with diverse mechanisms of action, including cytotoxic chemotherapies,

endocrine therapies, targeted therapies, checkpoint inhibitors, and cytokine immunotherapy, may all be labeled palliative chemotherapy and administered to people with advanced disease. In addition, with the rapid advancement in the diversity and efficacy of systemic therapies for advanced cancer treatment, survival outcomes have also changed, now occasionally blurring the line between curative and noncurative treatment intent.

Although some existing terminology creates a shared understanding between providers regarding the intent of a systemic cancer treatment (eg, adjuvant treatment after the resection of invasive ductal carcinoma of the breast), the expanding systemic treatment options for patients with advanced disease have left oncologists with a lexical gap. Palliative chemotherapy is no longer an accurate or specific enough term to describe all systemic, cancer-directed therapies administered without the expectation of cure. Until such a lexicon exists, direct communication regarding palliative chemotherapy treatment objectives should be incorporated into interdisciplinary discussions and between providers and patients when determining the plan of care.

COMMUNICATION FRAMEWORK ABOUT SYSTEMIC THERAPY FOR PATIENTS WITH ADVANCED CANCER

Surgical oncologists routinely undertake complex preoperative risk assessment and decision-making when considering operative intervention for a patient with advanced cancer, including the evaluation of performance status, nutritional state, comorbidities, and goals. If a patient may receive perioperative systemic cancer treatment, risk stratification should include a review of current and future disease-directed therapies to determine the impacts on surgical risk, timing, and anticipated recovery period. If a prolonged postoperative chemotherapeutic holiday is recommended, this factor may increase the risk of tumor progression. Interdisciplinary communication between surgical and medical oncologists, and with patients and families, helps to integrate information regarding systemic therapy into operative planning, and may inform timing and choice of systemic therapy. The topics discussed in this article can be used to inform discussions and decision making when patients with advanced cancer on systemic therapy require surgery.

Step 1: Prognostic considerations
- Undertake routine preoperative risk stratification regarding performance status, nutrition, and comorbidities.
- Establish prognosis with and without operative management.
- Establish prognosis related to further systemic treatment (eg, is further systemic therapy recommended? Would overall prognosis be negatively impacted if it were delayed or could not be resumed owing to surgical recovery?
- Apply prognostic nomograms specific to cancer type or surgery, if available.

Step 2: Patient goals and tolerance of medical burden
- Assess patient expectations regarding cancer outcomes and quality of life.
- Consider use of communication tools such as best case scenario/worst case scenario.[13]

Step 3: Surgical oncology considerations
- Clarify the intent of surgical intervention.
- Assess the urgency of surgery; optimize preoperative condition when feasible.

Step 4: Medical oncology considerations
- Clarify the intent of systemic treatment.
- Discuss perioperative risks associated with the current and/or planned systemic treatment, including infectious complications, wound healing, and hemostasis.

- Discuss the timing of perioperative systemic treatment in relation to surgery.
- If further systemic therapy is medically inappropriate, explore the prognostic implications.

Step 5: Palliative care considerations

- Consider palliative care consultation if:
  - Requested by the patient or family;
  - Patient's performance status or comorbidities preclude surgery or systemic cancer therapy;
  - Patient symptom burden is high; or
  - Patient goals require further clarification.

Step 6: Coordinated decision-making

- Align patient goals and treatment plan.
- Formalize plans for managing systemic cancer therapy preoperatively.
- Discuss postoperative supportive care and the timing of postoperative systemic treatment, if indicated.

In case 1A (**Table 1**), key questions remained regarding the intent of treatment based on its designation as palliative chemotherapy. When applied to this case, the communication framework assures that all domains have been addressed before surgical planning.

Case 1A Conclusion

Ms Jones' tumor responds to FOLFOX, and repeat imaging indicates that aggressive surgical management is appropriate. This plan is aligned with her goals of care, and plans are made for her to undergo 4 months of postoperative FOLFOX to receive a total course of 6 months of systemic treatment, beginning 1 month postoperatively. She completes these interventions and has a 3-year disease-free interval.

Using communication and a treatment planning framework, clinicians can overcome any perceived ambiguity associated with the term palliative chemotherapy associated with the treatment intent. Although there is no substitute for

Table 1
Case 1A: Ms Jones presents with a new diagnosis of colon adenocarcinoma with liver metastasis

Prognostic considerations	Eastern Cooperative Oncology Group (ECOG) 0, no comorbidities Life expectancy likely 2–3 y with systemic therapy only; surgical consolidation may offer potential for cure
Patient goals/values	Desires aggressive treatment with intent to prolong life
Surgical considerations	Patient is an excellent candidate for surgery Surgical appropriateness depends on response of liver metastasis to systemic treatment
Medical oncology considerations	Patient is an appropriate candidate for FOLFOX Limit to 4 preoperative cycles to decrease hepatotoxicity before surgery
Palliative care considerations	No immediate symptomatic needs; consult palliative if requested by patient
Coordinated decision-making	Patient and oncologic team agree on care plan: FOLFOX for 4 cycles, reimaging, and resection of primary tumor and metastasis, depending on response Goal of this treatment plan is cure

interdisciplinary communication, a general knowledge of common systemic cancer therapies may enrich these discussions, particularly as this relates to drug class-specific surgical considerations.

BEYOND PALLIATIVE CHEMOTHERAPY: SYSTEMIC THERAPY RISKS FOR THE SURGICAL PATIENT

Given the increasing number of new systemic treatments and new indications for already-approved agents, it is challenging to remain up to date on the most common and most serious perioperative risks associated with these agents. The continuation of Ms Jones' case explores the challenges surgeons and medical oncologists face when patients with advanced cancer on systemic therapies develop new surgical problems.

Case 1B

Three years after her initial surgery, Ms Jones develops asymptomatic, progressive liver and pelvic metastatic disease. She received FOLFIRI (5-fluorouracil, leucovorin, and irinotecan) and bevacizumab with the intent to control her disease progression. After 6 cycles, she develops a rectovaginal fistula; her liver metastases have resolved. Biopsy of the fistula location reveals metastatic cancer. There are no other sites of active disease. She is still hoping to extend her life "as long as possible." Given her excellent performance status, current disease burden, and response to therapy to date, her team believes she would likely recover from surgery and be able to undergo further cancer-directed therapy. Therefore, her surgery team would like to offer a fistula repair.

Ms Jones inquires about whether a fistula repair is higher risk in light of the treatment she is now receiving.

Question: How should Ms Jones' systemic chemotherapy be managed in the context of a new surgical problem and what are implications of her systemic treatment on operative interventions and recovery?

Several themes emerge from the synthesis of existing pharmacologic and clinical data regarding drug-related impacts on surgical or perioperative risk. The discussion here and the details in **Table 2** highlight the general principles related to infectious, bleeding, clotting, and wound healing risks. When oncologic pharmacists are available, surgical and medical oncologists may benefit from including them in interdisciplinary discussions regarding perioperative management of patients on systemic treatments.

Infectious Risk

Any treatments that cause cytopenias, including many cytotoxic and targeted therapies, may lead to an increased risk of infection and bleeding in the perioperative period.[14] Although growth factors may help to mitigate neutropenia and associated bacterial infection rate,[15] data indicate that some systemic therapies also confer some degree of functional immunosuppression that cannot be corrected with myeloid growth factors.[16]

In addition to leukopenia, some therapies, including cytotoxic chemotherapies, anti-CD20 monoclonal antibodies, corticosteroids, and others increase the risk of opportunistic infections such as *Pneumocystis jirovecii* pneumonia, invasive fungal infections, or JC-virus associated progressive multifocal leukocencephalopathy,[17] which may increase the morbidity of surgery in patients with cancer, as has been observed in HIV-positive patients with active opportunistic infections.[18]

Table 2
Systemic anticancer medications that impair wound healing in the perioperative period

Drug Class	Agent	General Indications	Potential Wound-related Perioperative Complications	Details/Management/ Recommendations
Cytotoxic chemotherapies	Alkylating agents (eg, cyclophosphamide, cisplatin) Antimetabolites (eg, 5-fluourouracil, methotrexate, azathioprine, cytarabine) Antitumor antibiotics (eg, doxorubicin) Antimicrotubule agents (eg, Taxanes, vincristine, vinblastine)	Widely used in the treatment of hematologic and solid tumors	Early animal studies indicated negative effect on wound healing Human studies less definitive Risk of infection if patient is cytopenic	General: When feasible, delay postoperative cytotoxic chemotherapy for several weeks; details related to specific agents provided below, if known.[14] Alkylating agents: May decrease wound tensile strength. Antimetabolites: May decrease wound tensile strength and healing. Antitumor antibiotics: delayed wound healing; Doxorubicin: Preoperatively: Hold for 7 d Postoperatively: Hold 7 d if feasible to lessen macrophage mediated wound healing impairment

Vascular endothelial growth receptor inhibitors	Bevacizumab Ramucirumab	Bevacizumab: Widely used: mCRC, brain, lung, HCC, ovarian, cervical malignancies Ramucirumab: GI, mCRC, lung, HCC malignancies	Impaired wound healing, GI perforation	Bevacizumab Preoperatively: Hold minimum of 6 wk before elective surgery if feasible. Hold for shorter duration for smaller procedures such as port placement. Postoperatively: Hold at least 28 d postoperatively; hold bevacizumab if any wound healing issues develop after restarting. Ramicirumab: Shorter half-life than bevacizumab. Preoperatively: Hold 28 d before elective surgery. Postoperatively: Hold 2 wk after surgery. Both: After waiting minimum recommended postoperative period, assess for adequate wound healing before reinitiation.

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Table 2
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Drug Class	Agent	General Indications	Potential Wound-related Perioperative Complications	Details/Management/ Recommendations
Multi-kinase inhibitors and other agents with antiangiogenic mechanisms	Regorafenib Sorafenib Sunitinib Pazopanib Axitinib Vandetanib Cabozantinib Lenvatinib Ziv-aflibercept	Regorafenib: mCRC, GIST, HCC Sorafenib: RCC, HCC, thyroid Sunitinib: RCC, GIST, pNET Pazopanib: RCC, STS Axitinib: RCC Vandetanib: thyroid Cabozantinib: thyroid, RCC, HCC Lenvatinib: thyroid Ziv-ablibercept: mCRC	Impaired wound healing, GI perforation	For all agents, preoperative recommendations are made in context of elective surgery; After minimum recommended postoperative period, assess for adequate healing before starting medication. Regorafenib: Preoperatively: Hold 2 wk. Postoperatively: Hold least 2 wk. Sorafenib: Preoperatively: Hold at least 10 d. Postoperatively: Hold at least 2 wk. Sunitinib: Preoperatively: Hold at least 3 wk. Postoperatively: Hold at least 2 wk. Pazopinib: Preoperatively: Discontinue at least 7 d. Postoperatively: Assess wound healing before restarting; do not administer if documented wound dehiscence. Axitinib:

	Preoperatively: Hold at least 2 d. Postoperatively: Hold at least 2 wk. Vandetanib: Preoperatively: Hold for at least 1 mo. Postoperatively: Hold for at least 2 wk. Cabozantinib: Preoperatively: Hold at least 3 wk Postoperatively: Hold at least 2 wk Lenvatinib: Preoperatively: Hold at least 1 wk. Postoperatively: Hold at least 2 wk. Ziv-aflibercept: Preoperatively: Hold for at least 4 wk. Postoperatively: Hold for at least 4 wk; discontinue if wound healing is impaired.

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Table 2
(*continued*)

Drug Class	Agent	General Indications	Potential Wound-related Perioperative Complications	Details/Management/ Recommendations
Corticosteroids	Glucocorticoids	Intermittent use to prevent chemotherapy-induced nausea/vomiting for postoperative nausea/ vomiting Higher doses, often with prolonged tapers, indicated to manage edema from brain tumors or immune-related adverse events associated with immunotherapies	Impaired wound healing, wound infections, poor glucose control	Long term (>30 d) use at higher doses associated with greatest risk of wound infection, impaired healing (Santos et al,[14] 2017). If feasible, taper/stop steroids before surgery and limit doses in postoperative period.

Abbreviations: GI, gastrointestinal; GIST, gastrointestinal stromal tumor; HCC, hepatocellular carcinoma; mCRC, metastatic colorectal cancer; pNET, pancreatic neuroendocrine tumor; RCC, renal cell carcinoma.

Data From refs [14, 21, 24, 29–39]

Bleeding and Clotting Complications

In addition to infectious risks from cytopenias, therapies resulting in myelosuppression may also elevate the risk for clinically significant bleeding. Although transfusions present a logical solution to thrombocytopenia, certain targeted therapies such as Bruton's tyrosine kinase inhibitors increase the risk for hemorrhage, irrespective of platelet count.[19]

In addition to increasing the risk of bleeding, specific systemic treatments, such as cisplatin, immunomodulators like thalidomide, corticosteroids, antiangiogenic medications, and hormonal agents such as tamoxifen are associated with elevated risk of venous thromboembolic events (VTE)[20–22] above and beyond the inherent VTE risk from malignancy itself. In the case of tamoxifen, guidelines recommend holding the drug for at least 3 weeks before elective surgery and restarting it when the postoperative VTE risk is decreased.[23] In most situations, patients undergoing cancer surgeries should receive pharmacologic VTE prophylaxis beginning preoperatively and continuing for 7 to 10 days postoperatively or longer if recommended owing to the VTE risk associated with the operation.[24]

Wound Healing

Effective wound healing requires a coordinated series of cellular changes, and the cells and growth factors that facilitate the inflammatory, proliferative and maturation phases of wound healing can be impacted by a variety of systemic cancer therapies.[14] **Table 2** provides general guidance on systemic anti-cancer agents that impact perioperative wound healing, including available evidence regarding recommended length of perioperative abstinence from systemic treatments.

- Cytotoxic chemotherapies
  Cytotoxic chemotherapy works by disrupting cellular division in cancer cells. In addition to tumor cells, bone marrow and gastrointestinal tract cells are impacted, as are cells that mediate the body's response to inflammation and facilitate healing. Although animal models suggest exposure to various cytotoxic chemotherapies may impair wound healing, the direct evidence in human studies is limited.[14] However, most oncologists and surgeons err on the side of caution when considering surgical interventions in patients who have recently received cytotoxic agents.
- Antiangiogenic agents
  Bevacizumab is the prototypical vascular endothelial growth factor–targeted therapy causing wound healing issues in the perioperative period. It is also associated with gastrointestinal perforations, bleeding, and arterial thrombotic events.[21,22] Owing to its long half-life, it is recommended that bevacizumab be held at least 6 weeks before elective surgeries, and at least 28 days postoperatively or until the surgical wound has healed.[25] Many multikinase inhibitors that target the vascular endothelial growth factor pathway have shorter half-lives, and evidence is accruing regarding specific length of preoperative and postoperative is abstinence required in the setting of surgery (**Table 2**).
- Immunotherapeutic agents
  In the last 10 years, several immune checkpoint inhibitors have been approved and indications are expanding. To date, there are no substantial data that immune checkpoint inhibitors are linked directly to significant perioperative complications, such as wound healing complications.[26,27] However, they are associated with numerous immune-related adverse events, including

endocrinopathies and pneumonitis, which could impact a patient's perioperative recovery.[27] If immune-related adverse events are severe, patients often require prolonged course of high dose steroids,[28] placing them at risk for wound healing complications if surgery is required before or during this period (discussed elsewhere in this article).

- Corticosteroids

  Patients with advanced cancer receive corticosteroids for many indications, including prophylaxis or the management of nausea and vomiting, as a part of chemotherapy regimens, and as a treatment for cancer- or treatment-associated symptoms. Longer exposure and higher doses of corticosteroids increase the risk for postoperative wound complications. Furthermore, patients with diabetes taking steroids may have poorly controlled blood glucose levels, contributing to wound complications.[29]

Although not exhaustive, understanding basic perioperative risks associated with systemic treatments frequently prescribed to patients with advanced cancer can help guide surgical planning for patients. Interdisciplinary discussion regarding patient-specific recommendations remains the gold standard and will account for individual patient- and disease-related factors that could impact the timing and/or length of perioperative systemic treatment holiday. **Table 3** presents the decision-making process for case 1B.

Table 3
Case 1B: Ms Jones has received palliative chemotherapy and now needs surgery

Prognostic considerations	ECOG 0–1 Limited burden of metastatic disease at time of fistula development Estimated life expectancy of multiple months to several years
Patient goals/values	Continues to desire disease-directed treatment with intent to prolong life; new grandchild was born recently Living with fistula is distressing; she would like it repaired
Surgical considerations	Fistula repair feasible Surgical intent is noncurative Goal: to improve patient quality of life and function
Medical oncology considerations	Current therapy: FOLFIRI and bevacizumab given with noncurative intent; Perioperative management: Hold bevacizumab given anticipated surgery; minimum 6–8 wk before surgery; and 4 wk postoperatively Future therapy: Further systemic treatment is feasible; numerous options available Wound healing postoperatively and restaging will guide decisions on timing of postoperative systemic therapy Ms Jones is at risk for progressive disease in perioperative period; systemic therapy will be held for at least 10 weeks
Palliative care considerations	Patient and oncologists have disease directed plan Ms Jones is distressed by fistula, recurrent disease; offer palliative care consult
Coordinated decision-making:	Surgical plan discussed; patient aware and accepting of required systemic treatment holiday and risk for disease progression; patient seeks fistula repair for improved quality of life Surgery scheduled in 6 wk

Case 1B Conclusion

FOLFIRI and bevacizumab are held, and Ms Jones undergoes an abdominoperineal resection with end colostomy, posterior vaginectomy, and gracilis flap reconstruction, complicated by partial flap failure requiring multiple debridements. The palliative care team was consulted to help manage complex somatic and neuropathic postoperative pain. Ultimately, she resumed cytotoxic chemotherapy and completed 6 months of FOLFIRI before her functional status declined from ECOG 0 to ECOG 2. She has no measurable metastatic disease, so a treatment break was recommended.

WHEN SYSTEMIC THERAPY AND SURGICAL INTERVENTION ARE NO LONGER APPROPRIATE

Medical decision-making regarding advance cancer treatment, systemic cancer therapies, and surgical intervention is often complex. It requires the integration of information from many team members and must take into account patient goals and values. Collaborative decision-making is especially critical in the setting of urgent or emergent surgical problems that arise when patients are near the end of life. Structured discussions using the same framework can ensure appropriate decision-making and care planning, as illustrated in **Table 4**.

Case 1C

After 6 months off systemic therapies, Ms Jones' carcinoembryonic antigen increases and peritoneal carcinomatosis is identified on imaging. Tumor pathology revealed microsatellite instability and her oncologist suggests a trial of immunotherapy given her debility after her last surgery and chemotherapy. She received 7 cycles of

Table 4
Case 1C: Ms Jones experiences progressive cancer with bowel obstruction while on third-line systemic therapy

Prognostic considerations	ECOG 2–3, needing increasing assistance Worsening burden of metastatic disease Estimated life expectancy in the range of weeks to months
Patient goals/values:	Quality of life is poor with intractable nausea and vomiting requiring a nasogastric tube Ms Jones does not wish to die in the hospital
Surgical considerations	Imaging: Peritoneal metastatic deposits causing multiple transition points in the small bowel Venting gastrostomy feasible despite peritoneal disease; offers freedom from the nasogastric tube
Medical oncology considerations	Recent immunotherapy exposure unlikely to impact surgical recovery Progressive cancer on third-line systemic treatment, poor performance status suggests limited benefit to additional systemic treatments
Palliative care considerations	Convene family meeting and contextualize offer for venting gastrostomy in light of patient's stated goals Plan to avoid intensive care unit admission and transition to comfort-focused care acutely if she decompensates in the postoperative period
Coordinated decision-making	Plans are made to pursue venting gastrostomy with a transition to home hospice after the immediate postoperative period

pembrolizumab monotherapy and is then admitted for intractable nausea and vomiting attributed to a malignant small bowel obstruction. Surgical oncology is consulted regarding operative management.

Question: Before making treatment plans for Ms Jones, what clinical and prognostic considerations should be examined by her team?

Case 1C Conclusion

After the gastrostomy procedure Ms Jones has home hospice care arranged. She lives 3 weeks and does not require rehospitalization or transfer to an inpatient hospice facility.

In some instances, the mechanism of action or side effects of systemic cancer therapy may not influence medical decision-making. Rather, decisions are made based on the prognostic implications of available data, including poor ECOG performance status limiting future systemic treatment options, poor response to current palliative systemic therapy, and low likelihood of functional recovery from major surgery. Only through use of a structured communication framework can the medical and surgical team be certain to provide optimal whole person care.

SUMMARY

The management of advanced cancer has undergone a dramatic evolution in recent years. "Palliative chemotherapy" does not adequately describe the abundance of new systemic therapies for advanced cancer and the variety of clinical scenarios in which patients may be offered them. The future of oncology care will require collaborative communication between the surgical and medical oncology team throughout the patient's journey with advanced cancer. Although general pharmacologic principles can provide guidance regarding the perioperative risks of systemic therapies, proactive, direct, interdisciplinary communication will always serve as the foundation of high quality cancer care for patients with advanced malignancies.

CLINICS CARE POINTS

- *Lexical gap:* Palliative chemotherapy is a term that lacks a standard definition. When surgical oncologists care for patients receiving "palliative chemotherapy" in the perioperative period, they should explore:
  - The type of medication being offered;
  - The intent of the systemic therapy (eg, life prolongation, symptom control); and
  - The potential impact of the medication on surgical outcomes.
- *Pharmacology:* Systemic anti-cancer therapies may have perioperative risks such as infection, thromboembolism, and impaired wound healing.
- *Perioperative risk mitigation:* Surgeons should collaborate with medical oncologists and oncology pharmacists to mitigate perioperative risk for patients with advanced cancer receiving perioperative systemic therapies.
- *Values-congruent patient care requires communication:* Structured communication with multidisciplinary team members regarding treatment and disease-related prognosis, treatment intent, and treatment planning can help guide values-based goals of care decisions in the perioperative period.
- *Integrate palliative care early for patients with advanced cancer:* Consider a palliative care consultation when:
  - The patient or family requests palliative care support;
  - Proposed interventions such as surgery and/or systemic therapy carry significant risk;

- Patients have significant symptom burden from their cancer or cancer treatment; and
- Teams require assistance clarifying a patient's goals and values.

DISCLOSURE

E. Wulff-Burchfield: Consulting or advisory role, Exelixis, Astellas; Family member with stock ownership, Immunomedics and Nektar. L. Spoozak: Travel funding, Intuitive Surgical; E. Finlay, MD: Stock ownership, Merck.

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