



Florida
CHAPTER



Venous Thromboembolism Prophylaxis and Treatment in Patients with Cancer

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CANCER BACKGROUND

cancer patients are prone to venous thromboembolism (VTE) which is an important cause of morbidity and mortality. Patients with cancer are significantly more likely to develop VTE and experience high rates of VTE recurrence and bleeding complications during VTE treatment.

ASCO published guidelines in 2007, with updates in 2013, 2015 and 2019 showing the evolving nature of this field.

RECOMMENDATIONS

1. Hospitalized patients with cancer and anticoagulation for VTE prophylaxis

Patients who have active malignancy and acute medical illness or reduced mobility should be offered pharmacologic thromboprophylaxis in the absence of bleeding or other contraindications.

2. Ambulatory patients with cancer and anticoagulation for VTE prophylaxis during systemic chemotherapy.

High risk patients with cancer may be offered thromboprophylaxis with apixaban, rivaroxaban, or low molecular-weight heparin (LMWH) provided there are no significant risks for bleeding and no drug interactions.

Patients with multiple myeloma receiving thalidomide- or lenalidomide-based regimens with che-

motherapy and/or dexamethasone should be offered pharmacologic thromboprophylaxis with either aspirin or LMWH for lower-risk patients and LMWH for higher-risk patients.

3. Patients with cancer undergoing surgery and perioperative VTE prophylaxis.

All patients with malignant disease undergoing major surgery should be offered pharmacologic thromboprophylaxis with either unfractionated heparin or LMWH unless contraindicated because of active bleeding, or high bleeding risk or other contraindications.

Prophylaxis should be started preoperatively.

Pharmacologic thromboprophylaxis for patients undergoing major surgery for cancer should be continued for at least 7 to 10 days. Extended prophylaxis with LMWH for up to 4 weeks postoperatively is recommended for patients undergoing major open or laparoscopic abdominal or pelvis surgery for cancer who have high-risk features, such as restricted mobility, obesity, history of VTE, or with additional risk factors.

4. Patients with cancer with established VTE that require anticoagulation to prevent recurrence.

Initial anticoagulation may involve LMWH, unfractionated heparin

(UFH), fondaparinux, or rivaroxaban. For patients initiating treatment with parenteral anticoagulation, LMWH is preferred over UFH for the initial 5 to 10 days of anticoagulation for the patient with cancer with newly diagnosed VTE who does not have severe renal impairment.

For long-term anticoagulation, LMWH, edoxaban, or rivaroxaban for at least 6 months is preferred because of improved efficacy over vitamin K antagonist (VKAs). VKAs are inferior but may be used if LMWH or direct oral anticoagulants (DOACs) are not accessible.

Anticoagulation with LMWH, DOACs, or VKAs beyond the initial 6 months should be offered to select patient with active cancer, those with metastatic disease or on chemotherapy.

The insertion of a vena cava filter may be offered as an adjunct to anticoagulation in patients with progression of thrombosis despite optimal anticoagulant therapy.



Venous Thromboembolism Prophylaxis *continued*

For patients with primary or metastatic CNS malignancies and established VTE, anticoagulation as described for other patients with cancer should be offered, although uncertainties remain about choice of agents and selection of patient most likely to benefit.

Incidental pulmonary embolism (PE) and deep vein thrombosis should be treated in the same manner as symptomatic VTE.

5. Risk prediction and awareness of VTE among patients with cancer.

Patients with cancer should be assessed for VTE risk initially and periodically thereafter, particularly when starting systemic antineoplastic therapy or at the time of hospitalization.

Oncologist and members of the oncology team should educate patients regarding VTE, particularly in setting that increase risk, such as major surgery, hospitalization, and while receiving systemic antineoplastic therapy.

DATA TO SUPPORT

Venous thromboembolism Prophylaxis and Treatment in Patient with Cancer: ASCO Clinical Practice Guideline Update. *Journal of Clinical Cardiology*, May 16, 2019.
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 Hutten BA. Incidence of recurrent thromboembolic and bleeding complication among patient with venous thromboembolism in relation to both malignancy and achieved international normalized ratio: A prospective analysis. Khorana score: www.ncbi.nlm.nih.gov/pmc/articles/PMC6545838/pdf/1041277.pdf

INNOVATIVE RISK SCORES

Most used is the Khorana score to predict bleeding: > 3 is high risk

Patients' characteristics	Risk score
Site of cancer	
Very high risk (stomach, pancreas)	2
High risk (lung, lymphoma, gynecological, bladder, or testicular)	1
Prechemotherapy platelet count $\geq 350 \times 10^9/L$	1
Prechemotherapy hemoglobin level $< 100 \text{ g/L}$ or use of red cell growth factors	1
Prechemotherapy leukocyte count $> 11 \times 10^9/L$	1
Body Mass Index $\geq 35 \text{ kg/m}^2$	1

ON THE HORIZON

This topic continues to be studied intently particularly in patients with Atrial fibrillation, PE, DVT, coronary artery disease and the need for aggressive antiplatelet therapy. All these factors need to be taken into consideration as we anticoagulate the high-risk cancer patient.