ASCO GUIDELINES

VENOUS THROMBOEMBOLISM PROPHYLAXIS AND TREATMENT IN PATIENTS WITH CANCER: AMERICAN SOCIETY OF CLINICAL ONCOLOGY CLINCIAL PRACTICE GUIDELINE UPDATE		
Clinical Question	**Recommendation**	**Strength of Evidence; Type, Strength of Recommendation**
Should hospitalized patients with cancer receive anticoagulation for VTE prophylaxis?	1.1 Hospitalized patients who have active malignancy with acute medical illness or reduced mobility should receive pharmacologic thromboprophylaxis in the absence of bleeding or other contraindications.	*Evidence:* Strong; *Type, Strength:* evidence-based, strong
	1.2 Hospitalized patients who have active malignancy without additional risk factors may be considered for pharmacologic thromboprophylaxis in the absence of bleeding or other contraindications.	*Evidence:* Moderate; *Type, Strength:* evidence-based, strong
	1.3 Data are inadequate to support routine thromboprophylaxis in patients admitted for minor procedures or short chemotherapy infusion, or in patients undergoing stem cell/ bone marrow transplantation.	*Evidence:* Insufficient; *Type, Strength:* informal consensus, moderate

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Should ambulatory patients with cancer receive anticoagulation for VTE prophylaxis during systemic chemotherapy?	2.1 Routine pharmacologic thromboprophylaxis is not recommended in cancer outpatients.	*Evidence:* moderate; *Type, Strength:* evidence-based, strong
	2.2 Based on limited RCT data, clinicians may consider LMWH prophylaxis on a case-by-case basis in highly selected outpatients with solid tumors receiving chemotherapy. Consideration of such therapy should be accompanied by a discussion with the patient about the uncertainty concerning benefits and harms, as well as dose and duration of prophylaxis in this setting.	*Evidence:* moderate; *Type, Strength:* evidence-based, weak
	2.3 Patients with multiple myeloma receiving thalidomide- or lenalidomide-based regimens with chemotherapy and/or dexamethasone should receive pharmacologic thromboprophylaxis with either aspirin or LMWH for lower-risk patients and LMWH for higher-risk patients.	*Evidence:* moderate; *Type, Strength:* evidence-based, strong

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Should patients with cancer undergoing surgery receive perioperative VTE prophylaxis?	3.1 All patients with malignant disease undergoing major surgical intervention should be considered for pharmacologic thromboprophylaxis with either UFH or LMWH unless contraindicated because of active bleeding or a high bleeding risk.	*Evidence:* strong; *Type, Strength:* evidence-based, strong
	3.2 Prophylaxis should be commenced preoperatively.	*Evidence:* moderate; *Type, Strength:* evidence-based, moderate
	3.3 Mechanical methods may be added to pharmacologic thromboprophylaxis, but should not be used as monotherapy for VTE prevention unless pharmacologic methods are contraindicated because of active bleeding or high bleeding risk.	*Evidence:* moderate; *Type, Strength:* evidence-based, strong
	3.4 A combined regimen of pharmacologic and mechanical prophylaxis may improve efficacy, especially in the highest-risk patients.	*Evidence:* moderate; *Type, Strength:* informal consensus, moderate

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	3.5 Pharmacologic thromboprophylaxis for patients undergoing major surgery for cancer should be continued for at least 7-10 days. Extended prophylaxis with LMWH for up to 4 weeks postoperatively should be considered for patients undergoing major abdominal or pelvic surgery for cancer who have high-risk features such as restricted mobility, obesity, history of VTE, or with additional risk factors. In lower risk surgical settings, the decision on appropriate duration of thromboprophylaxis should be made on a case-by-case basis considering the individual patient.	*Evidence:* strong; *Type, Strength:* evidence-based, strong to moderate
What is the best method for treatment of patients with cancer with established VTE to prevent recurrence?	4.1 LMWH is preferred over UFH for the initial 5 to 10 days of anticoagulation for the cancer patient with newly diagnosed VTE who does not have severe renal impairment (defined as creatinine clearance < 30 mL/min).	*Evidence:* strong; *Type, Strength:* evidence-based, strong
	4.2 For long term anticoagulation, LMWH for at least 6 months is preferred due to improved efficacy over Vitamin K antagonists. Vitamin K antagonists are an acceptable alternative for long-term therapy if LMWH is not available.	*Evidence:* strong; *Type, Strength:* evidence-based, strong

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	4.3 Anticoagulation with LMWH or Vitamin K antagonist beyond the initial 6 months may be considered for select patients with active cancer, such as those with metastatic disease or those receiving chemotherapy.	*Evidence:* insufficient; *Type, Strength:* informal consensus, weak to moderate
	4.4 The insertion of a vena cava filter is only indicated for patients with contraindications to anticoagulant therapy. It may be considered as an adjunct to anticoagulation in patients with progression of thrombosis (recurrent VTE or extension of existing thrombus) despite optimal therapy with LMWH.	*Evidence:* weak *to* moderate; *Type, Strength:* informal consensus, moderate
	4.5 For patients with CNS malignancies, anticoagulation is recommended for established VTE as described for other patients with cancer. Careful monitoring is necessary to limit the risk of hemorrhagic complications.	*Evidence:* moderate; *Type, Strength:* informal consensus, strong
	4.6 Use of novel oral anticoagulants for either prevention or treatment of VTE in cancer patients is not recommended at this time.	*Evidence:* insufficient; *Type, Strength:* informal consensus, strong
	4.7 Based on consensus, incidental PE and DVT should be treated in the same manner as symptomatic VTE. Treatment of splanchnic or visceral vein thrombi diagnosed incidentally should be considered on a case-by-case basis, considering potential benefits and risks of anticoagulation.	*Evidence:* insufficient; *Type, Strength:* informal consensus, moderate

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Should patients with cancer receive anticoagulants in the absence of established VTE to improve survival?	5.1 Anticoagulants are not recommended to improve survival in patients with cancer without VTE.	*Evidence:* weak to moderate; *Type, Strength:* informal consensus, moderate
	5.2 Patients with cancer should be encouraged to participate in clinical trials designed to evaluate anticoagulant therapy as an adjunct to standard anticancer therapies.	
What is known about risk prediction and awareness of VTE among patients with cancer?	6.1 Based on consensus, the Panel recommends that cancer patients should be assessed for VTE risk at the time of chemotherapy initiation and periodically thereafter. Individual risk factors, including biomarkers or cancer site, do not reliably identify cancer patients at high risk of VTE. In the outpatient setting, risk assessment can be conducted based on a validated risk assessment tool.	*Evidence:* moderate; *Type, Strength:* informal consensus, strong
	6.2 Based on consensus, the Panel recommends that oncologists educate patients regarding VTE, particularly in settings that increase risk such as major surgery, hospitalization, and while receiving systemic anti-neoplastic therapy.	*Evidence:* insufficient; *Type, Strength:* informal consensus, strong