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Title

Venous Thromboembolism Prophylaxis and Treatment in Patients With Cancer:
American Society of Clinical Oncology Clinical Practice Guideline Update 2014

Permalink

<https://escholarship.org/uc/item/2qq729gg>

Journal

Journal of Clinical Oncology, 33(6)

ISSN

0732-183X

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Publication Date

2015-02-20

DOI

10.1200/jco.2014.59.7351

Peer reviewed

Venous Thromboembolism Prophylaxis and Treatment in Patients With Cancer: American Society of Clinical Oncology Clinical Practice Guideline Update 2014

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Published online ahead of print at www.jco.org on January 20, 2015.



Processed as a Rapid Communication manuscript.

American Society of Clinical Oncology Clinical Practice Guideline Committee approval: November 5, 2014.

Editor's note: This American Society of Clinical Oncology 2014 clinical practice guideline update reaffirms and summarizes the recommendations that were previously published in 2013; the 2013 recommendations remain current as of October 2014. Additional information, including Data and Methodology Supplements, slide sets, clinical tools and resources, and links to patient information at www.cancer.net, is available at www.asco.org/guidelines/vte.

Authors' disclosures of potential conflicts of interest are found in the article online at www.jco.org. Author contributions are found at the end of this article.

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0732-183X/15/3306w-654w/\$20.00

DOI: 10.1200/JCO.2014.59.7351

A B S T R A C T

Purpose

To provide current recommendations about the prophylaxis and treatment of venous thromboembolism (VTE) in patients with cancer.

Methods

PubMed and the Cochrane Library were searched for randomized controlled trials, systematic reviews, meta-analyses, and clinical practice guidelines from November 2012 through July 2014. An update committee reviewed the identified abstracts.

Results

Of the 53 publications identified and reviewed, none prompted a change in the 2013 recommendations.

Recommendations

Most hospitalized patients with active cancer require thromboprophylaxis throughout hospitalization. Routine thromboprophylaxis is not recommended for patients with cancer in the outpatient setting. It may be considered for selected high-risk patients. Patients with multiple myeloma receiving antiangiogenesis agents with chemotherapy and/or dexamethasone should receive prophylaxis with either low-molecular weight heparin (LMWH) or low-dose aspirin. Patients undergoing major surgery should receive prophylaxis starting before surgery and continuing for at least 7 to 10 days. Extending prophylaxis up to 4 weeks should be considered in those undergoing major abdominal or pelvic surgery with high-risk features. LMWH is recommended for the initial 5 to 10 days of treatment for deep vein thrombosis and pulmonary embolism as well as for long-term secondary prophylaxis (at least 6 months). Use of novel oral anticoagulants is not currently recommended for patients with malignancy and VTE because of limited data in patients with cancer. Anticoagulation should not be used to extend survival of patients with cancer in the absence of other indications. Patients with cancer should be periodically assessed for VTE risk. Oncology professionals should educate patients about the signs and symptoms of VTE.

J Clin Oncol 33:654-656. © 2015 by American Society of Clinical Oncology

INTRODUCTION

The goal of this 2014 guideline update is to provide oncologists and other clinicians with current recommendations regarding the prevention and treatment of venous thromboembolism (VTE) in patients with cancer. The American Society of Clinical Oncology (ASCO) first published an evidence-based clinical practice guideline on VTE in patients with cancer in 2007, with an updated guideline published in 2013.¹ The current 2014 update assesses whether the 2013 recommendations remain valid. A complete list of previous recommen-

dations is available at www.asco.org/guidelines/vte and in Data Supplement 1.

METHODS

Guideline Update Process

PubMed and the Cochrane Library were searched for randomized controlled trials, systematic reviews, meta-analyses, and clinical practice guidelines for the period from November 5, 2012, through July 2014. The disease and intervention search terms were those that were used for the 2013 guideline update. An update committee (members listed in Appendix Table A1, online only), formed in accordance

THE BOTTOM LINE

Venous Thromboembolism Prophylaxis and Treatment in Patients with Cancer: American Society of Clinical Oncology Clinical Practice Guideline Update**Interventions**

- Pharmacologic anticoagulation

Target Audience

- Medical oncologists, surgical oncologists, hospitalists, oncology nurses

Key Recommendations

- Most hospitalized patients with active cancer require thromboprophylaxis throughout hospitalization. Data are inadequate to support routine thromboprophylaxis in patients admitted for minor procedures or short chemotherapy infusion.
- Routine thromboprophylaxis is not recommended for ambulatory patients with cancer. It may be considered for highly select high-risk patients.
- Patients with multiple myeloma receiving antiangiogenesis agents with chemotherapy and/or dexamethasone should receive prophylaxis with either low-molecular weight heparin (LMWH) or low-dose aspirin to prevent venous thromboembolism (VTE).
- Patients undergoing major cancer surgery should receive prophylaxis starting before surgery and continuing for at least 7 to 10 days.
- Extending postoperative prophylaxis up to 4 weeks should be considered in those undergoing major abdominal or pelvic surgery with high-risk features.
- LMWH is recommended for the initial 5 to 10 days of treatment of established deep vein thrombosis and pulmonary embolism as well as for long-term secondary prophylaxis for at least 6 months.
- Use of novel oral anticoagulants is not currently recommended for patients with malignancy and VTE.
- Anticoagulation should not be used to extend survival of patients with cancer in the absence of other indications.
- Patients with cancer should be periodically assessed for VTE risk.
- Oncology professionals should educate patients about the signs and symptoms of VTE.

Methods

- An update committee was convened to determine whether previous recommendations remain valid based on an updated review of evidence from the medical literature.

Additional Information

- This guideline is published in *Journal of Clinical Oncology*. Data Supplements, including evidence tables, and clinical tools and resources can be found at www.asco.org/guidelines/vte.

with the ASCO Conflict of Interest Management Procedures for Clinical Practice Guidelines, reviewed the abstracts that were identified for predefined signals that would suggest the need to change a previous recommendation. Additional information about the results of the updated literature search (Data Supplement 2) and 2014 search strategy string and results (Data Supplement 3), as well as

a discussion of the ASCO signals approach to guideline updating, are available at www.asco.org/guidelines/vte and in the 2014 Data Supplement and 2014 Methodology Supplement, respectively. A QUOROM diagram of the updated search and the clinical questions are provided in Data Supplements 4 and 5, respectively.

Guideline Disclaimer

The clinical practice guideline and other guidance published herein are provided by ASCO to assist providers in clinical decision making. The information herein should not be relied on as being complete or accurate, nor should it be considered as inclusive of all proper treatments or methods of care or as a statement of the standard of care. With the rapid development of scientific knowledge, new evidence may emerge between the time information is developed and when it is published or read. The information is not continually updated and may not reflect the most recent evidence. The information addresses only the topics specifically identified therein and is not applicable to other interventions, diseases, or stages of diseases. This information does not mandate any particular course of medical care. Furthermore, the information is not intended to substitute for the independent professional judgment of the treating provider, because the information does not account for individual variation among patients. Recommendations reflect high, moderate, or low confidence in the net effect of a given course of action. The use of words such as “must,” “must not,” “should,” and “should not” indicates that a course of action is recommended or not recommended for either most or many patients, but there is latitude for the treating physician to select other courses of action in individual cases. In all cases, the selected course of action should be considered by the treating provider in the context of treating the individual patient. Use of the information is voluntary. ASCO provides this information on an as-is basis and makes no warranty, express or implied, regarding the information. ASCO specifically disclaims any warranties of merchantability or fitness for a particular use or purpose. ASCO assumes no responsibility for any injury or damage to persons or property arising out of or related to any use of this information or for any errors or omissions.

This is the most recent information as of the publication date. For the most recent information, or to submit new evidence, please visit www.asco.org/guidelines/vte and the ASCO guidelines wiki at www.asco.org/guidelineswiki.

Guideline and Conflicts of Interest

The update committee was assembled in accordance with the ASCO Conflict of Interest Management Procedures for Clinical Practice Guidelines (summarized at <http://www.asco.org/rwc>). Members of the committee completed the ASCO disclosure form, which requires disclosure of financial and other interests that are relevant to the subject matter of the guideline, including relationships with commercial entities that are reasonably likely to experience direct regulatory or commercial impact as a result of promulgation of the guideline. Categories for disclosure include employment relationships, consulting arrangements, stock ownership, honoraria, research funding, and expert testimony. In accordance with these procedures, the majority of the members of the committee did not disclose any such relationships.

REFERENCE

1. Lyman GH, Khorana AA, Kuderer NM, et al: Venous thromboembolism prophylaxis and treat-

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RESULTS

The search yielded 53 publications. After careful review of the identified publications, the update committee concluded that there were no results that would change the 2013 guideline recommendations.¹ A bibliography of the results of the updated literature search is provided in Data Supplement 2.

RECOMMENDATIONS

The 2014 recommendations are listed in the Bottom Line Box. These recommendations are consistent with the previous (2013) recommendations.

ASCO believes that cancer clinical trials are vital to inform medical decisions and improve cancer care and that all patients should have the opportunity to participate.

ADDITIONAL RESOURCES

More information, including Data and Methodology Supplements, slide sets, and clinical tools and resources, is available at www.asco.org/guidelines/vte. Patient information is available at www.cancer.net. Visit www.asco.org/guidelineswiki to provide comments on the guideline or to submit new evidence.

AUTHORS' DISCLOSURES OF POTENTIAL CONFLICTS OF INTEREST

Disclosures provided by the authors are available with this article at www.jco.org.

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Administrative support: Kari Bohlke

Manuscript writing: All authors

Final approval of manuscript: All authors

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Venous Thromboembolism Prophylaxis and Treatment in Patients With Cancer: American Society of Clinical Oncology Clinical Practice Guideline Update 2014

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Appendix**Table A1.** ASCO Update Committee Members

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NOTE. ASCO staff: Kari Bohlke, ScD, and Mark R. Somerfield, PhD.

Abbreviations: ASCO, American Society of Clinical Oncology; PGIN, Practice Guidelines Implementation Network.

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