Evaluation of the Appropriateness of Venous Thromboembolism Prophylaxis in Hospitalized Oncology Patients after the Implementation of a Standardized Order Set

Ha Trinh, B.S., Pharm.D.
PGY1 Pharmacy Resident

Sibley Memorial Hospital, Washington, D.C.
Eastern States Conference
May 1, 2010

Objectives

- At the conclusion of the presentation participants should be able to:
  - Recite current national recommendations on venous thromboembolism (VTE) risk assessment and prophylaxis
  - Describe the prevalence of VTE for patients with cancer
  - Discuss the current study

Epidemiology[1]

- VTE is the most common preventable cause of hospital death
- More than 2 million patients suffer from VTE each year
  - More than 50% of these patients develop VTE in the hospital
- Pharmacologic prophylaxis reduces VTE by 50% to 65%

1 http://www.ahrq.gov/qual/vtguide/vtguideapa.htm

Background on VTE Risk Assessment

- **2008 The Joint Commission's Safety Goal**[1] required hospitals to look at VTE risk as part of the overall anticoagulant therapy
- **American College of Chest Physician (ACCP)**[2] **& National Quality Forum (NQF)**[3] recommends an active strategy for VTE prevention, including risk assessment
- Recently **Center for Medicare & Medicaid Services (CMS)**[4] deemed VTE as non-reimbursable if it is hospital-acquired

1 www.jointcomission.org
2 Geerts WH et al. CHEST. 2008;133;381S-453S.
3 www.qualityforum.org
4 www.cms.gov

Sibley Data: DVT Events 2008

- 215 total cases
- Predominant risk factors (over 85%)
  - Age greater than 40
  - Malignancy
- 15% (n = 32/215) occurred during hospitalization
  - 85% medicine patients
  - 30% received anticoagulation prophylaxis
- 16.3% (n = 35/215) occurred in patients who had been recently discharged from Sibley

DVT = Deep Vein Thrombosis

VTE Risk in Oncology Patients

- When compared to non-oncology patients
  - 4-fold higher rate of VTE[1]
  - 6.5-fold higher rate with chemotherapy[1]
  - Represent 20% of all patients with VTE[1]
  - In-patient VTE prophylaxis recommended[1,2,3]
    - ONLY 45% will receive VTE prophylaxis[1]

1 www.nccn.org
2 www.asco.org/guidelines
3 Geerts WH et al. CHEST. 2008;133;381S-453S.

Purpose and Methods

- Improve appropriate VTE prophylaxis by 30% in oncology patients
- Retrospective and prospective, concurrent medical record review of pre- and post-implementation of standardized order set

Methods: Inclusion & Exclusion

Inclusion	Exclusion
At least 18 years or older	Admitted for the treatment of VTE
Diagnosed with an active cancer	On anticoagulant treatment prior to admission
Admitted to the hospital for greater than 24 hours	Surgical patients

Methods: Endpoints

- Primary endpoint
  - Change in appropriate prophylaxis
- Secondary endpoints
  - VTE events
  - Bleeding events
  - Other adverse events

Methods: Appropriate VTE Prophylaxis

- All criteria must be met:
  - **Received prophylaxis during hospitalization**
  - **Remained on prophylaxis during hospitalization if not contraindicated**
  - **Received prophylaxis within 24 hours of admission**
  - Prophylaxis:
    - Heparin 5,000 units SQ every 8 hours
    - Enoxaparin 30 mg SQ every 12 hours
    - Enoxaparin 30 mg – 40 mg SQ every 24 hours
    - Fondaparinux 2.5 mg SQ every 24 hours
    - Warfarin, INR goal 2 – 3
    - Sequential compression devices (w/ documented contraindications to pharmacological prophylaxis, or risk score of 0 – 1)

Methods: Statistical Analysis

- N = 63 for each category
  - Power of 80%
  - Detect 30% difference

Process Timeline 2009 – 2010

- August: Initiate development of order set
- October: Approved by
  - Pharmacy and Therapeutics Committee (P&T)
  - Health Information Management
  - Institutional Review Board
- November: Pilot started and available on intranet
- December: Medical staff meeting
- January: Data collection initiated
- February: Nursing staff meeting
- April: Order set in admission package

Results: Enrollment

- Pre-implementation
  - August – December 9, 2009
  - 70% (n = 63/89) patients met criteria
- Post-implementation
  - December 10, 2009 – present
  - 47% (n = 10/21) patients met criteria

13

Results: Primary Endpoint

	Received prophylaxis during hospitalization	Remained on prophylaxis during hospitalization*	Prophylaxis within 24 hours of admission	**Received appropriate prophylaxis**
Pre N = 63	81% (51/63)	68% (43/63)	51% (32/63)	**44% (28/63)**
Post N = 10	80% (8/10)	50% (5/10)	50% (5/10)	**20% (2/10)**

* If not contraindicated

14

Results: Secondary Endpoints

	VTE event during hospitalization	Bleeding event during hospitalization	Other adverse event during hospitalization	**Expired during hospitalization**
Pre N = 63	5% (3/63)	6% (4/63)	0% (0/63)	**8% (5/63)**
Post N = 10	0% (0/10)	20% (2/10)	0% (0/10)	**10% (1/10)**

15

Discussion

- Study is still ongoing
- Post-implementation data did not show an improvement in appropriate VTE prophylaxis
- Limitations
  - Order set was not used
  - Order set use was optional
  - Delay in nursing communication & education

16

Future Directions

- Follow-up results with P&T and Quality Improvement Committees
- Continue providing physician & staff education
- Continue quality improvement evaluation, audit and feedback
- Consider mandatory use of risk assessment

17

Assessment Question

Which of the following statement regarding oncology patients is <u>not</u> true?

A. Patients with cancer have a 4-fold higher rate of VTE

B. Patients with cancer who are receiving chemotherapy have a 6.5-fold higher rate of VTE

C. Patients with cancer represent approximately 50% of all patients with VTE

D. Approximately 45% of hospitalized medically-ill patients with cancer will receive VTE prophylaxis

18

References

- Talking points to attract administrative support for venousthromboembolism prevention programs. AHRQ. 2008. http://www.ahrq.gov/qual/vtguide/vtguideapa.htm
- Venous thromboembolism (VTE) core measure set. Joint Commission. 2009. www.jointcomission.org
- Geerts WH et al. Prevention of venous thromboembolism: American college of chest physicians evidence-based clinical practice guidelines 8th edition. CHEST. 2008;133;381S-453S.
- National voluntary consensus standards for the reporting of healthcare-associated infection data: a census report. NQF. 2008. www.qualityforum.org
- Hospital-acquired conditions (present on admission indicator). Centers for Medicare & Medicaid Services. 2008. www.cms.gov
- Recommendations for venous thromboembolism prophylaxis and treatment in patients with cancer. ASCO. 2007. www.asco.org/guidelines
- Venous thromboembolic disease. NCCN. 2009. www.nccn.org

Thank You

Acknowledgements: Michelle Allen, Pharm.D., BCPS, FCCM & Christopher Keeys, Pharm.D., BCPS, FMEA Anticoagulation Team, SCIP Team, Trinh Le, MS, RPh, Marilyn Farinre, Pharm.D., MBA, Ben Miles, Pharm.D., BCPS