

# Indications for Warfarin in Trauma Patients

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# Indications for Warfarin in Trauma Patients

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# Hypothesis

- Patients admitted to the trauma service on warfarin anticoagulation have inappropriate indications for anticoagulation

# Background

- Clinical practice guidelines for anticoagulation are outlined in *Chest 2012*
- Fall risk currently does not factor into guidelines for anticoagulation with warfarin
- Prior studies have demonstrated inferior outcomes in trauma patients on anticoagulation

# Methods

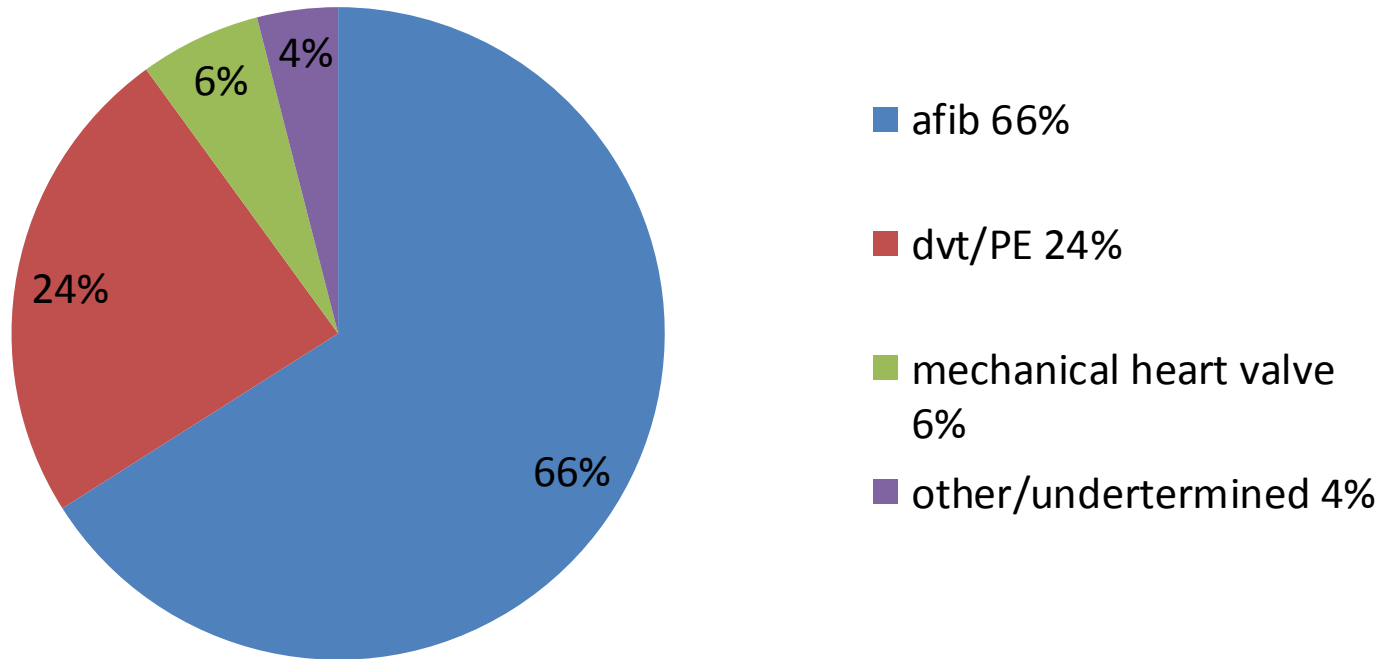
- Retrospective chart review of all patients admitted to the trauma service on preexisting warfarin anticoagulation at a level 1 trauma center between January 1, 2012 and December 31, 2012
- Indications for anticoagulation determined, along with whether the indications meet published guidelines
- Other data points collected included admitting international normalized ratio, mechanism, length of stay, injury severity score, and inpatient mortality

# Results

- 2,744 admissions during the study period
- Study group consisted of 219 patients on warfarin anticoagulation
- Median age 77 years
- Most common traumatic mechanisms were mechanical fall (84%), MVC (10%)

# Indications for Anticoagulation

Indications for anticoagulation





# Thromboembolic Event Risk by CHADS2 Score

- 1 point each for CHF, hypertension, age greater than or equal to 75, diabetes mellitus
- 2 points for previous stroke/TIA
- Anticoagulation indicated for patients with Afib and CHADS2 Score 1 or higher, per Chest guidelines

CHADS2 Score	Annual risk of event (%)
0	1.9
1	2.8
2	4.0
3	5.9
4	8.5
5	12.5
6	18.2



# Recommendations for Anticoagulation for DVT

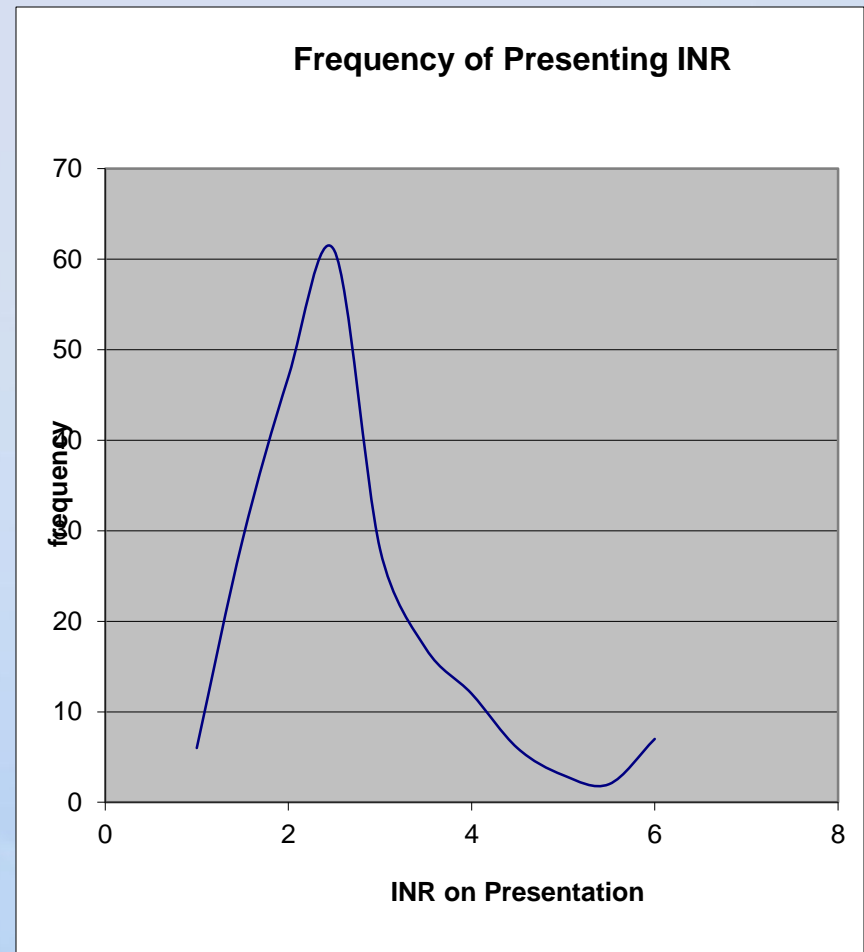
- For patients with a proximal DVT provoked by surgery or a non-surgical transient cause, anticoagulation should be continued for 3 months
- For patients with an unprovoked DVT, continue anticoagulation for 3 months, followed by evaluation of risk-benefit ratio of extended therapy

# Meeting Guidelines

- Guidelines for each indication were individually examined
- Indications clearly fell within the *Chest 2012* guidelines in 84% and did not in 4% of patients; for the remaining 12% of patients the documentation was insufficient to clearly define whether guidelines were met
- Specifically for the population of patients with afib, 99% met guidelines

# Admission INR

- 62% of patients within therapeutic INR range on admission
- 16% subtherapeutic
- 22% supratherapeutic



# Inpatient Mortality Rates

## Overall Group

- All trauma admissions in study period (2,744 patients) – 2.9%
- 1,056 patients over age 65 – 4.5%
- Study group of 219 patients on coumadin anticoagulation – 6.8%

## Inpatient Mortality by admission INR

- Subtherapeutic 4.4%
- Therapeutic 7.8 %
- Supratherapeutic 8.5%

# Conclusion

- Contrary to the study's hypothesis, the majority of the study group fell within Chest guidelines for anticoagulation
- Our data supports earlier studies suggesting inferior outcomes for patients on anticoagulation

# Areas for Further Study

- Should fall risk factor into anticoagulation schema?
- How will the use of newer oral direct thrombin inhibitor agents affect outcomes in trauma?



# References

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- 2. Impact of preinjury anticoagulation in patients with traumatic brain injury. South Med J. 2009 May;102(5):476-80.
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# Questions?

