

Anticoagulation therapy following endovascular treatment of iliofemoral deep vein thrombosis

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Disclosure

Speaker name: Tim Sebastian

I have the following potential conflicts of interest to report:

- Consulting
- Employment in industry
- Stockholder of a healthcare company
- Owner of a healthcare company
- Other(s)

- I do not have any potential conflict of interest

Anticoagulation therapy remains first-line therapy for most patients with proximal deep vein thrombosis ...

none invasive

widely available

Advantages ...

effectively inhibits thrombus propagation

low risk of complications

reduces risk for recurrence

improves VTE morbidity and mortality

J Vasc Interv Radiol, 2004 Mar;15(3):249-56.

Acute iliofemoral deep vein thrombosis: evaluation of underlying anatomic abnormalities by spiral CT venography.

Chung JW¹, Yoon CJ, Jung SI, Kim HC, Lee W, Kim YI, Jae HJ, Park JH.

80% anatomic abnormalities central to thrombosed vein

low recanalization rates in presence of compression

Limitations ...

ineffective in preventing the postthrombotic syndrome

provides no treatment of underlying anatomic trigger

Iliac compression syndrome and recanalization of femoropopliteal and iliac venous thrombosis: A prospective study with magnetic resonance venography

Douglas G. W. Fraser, MRCP,^a Alan R. Moody, FRCR,^b Paul S. Morgan, PhD,^d and Anne Martel, PhD,^c *Birmingham and Nottingham, England; and Toronto, Canada*

MTS associated with persistent occlusion of left iliac vein and failure of recanalization during anticoagulation therapy

IFDVT PATIENTS ARE HIGH RISK PATIENTS

Recurrence rate during active treatment **twice as high** in patients with iliofemoral DVT compared to patients with proximal DVT without iliac vein involvement

High risk patients most likely benefit from more aggressive therapy:
including early thrombus removal and stent placement

Deep vein thrombosis of the **common femoral vein** or **iliac veins** predicts a **more severe manifestation** of the postthrombotic syndrome

(Kahn et al. Ann Intern Med 2008)

Real World Practise

Case Scenario

- 30 y male
- First left-leg acute iliofemoral DVT
- Patient undergoes catheter-directed thrombolysis
- IVUS: May Thurner lesion -> Covered with a venous stent
- Good technical result with health leg inflow veins

Antithrombotic therapy?

Current Practise

- The minority of patients received antithrombotic therapy consistent to published VTE guidelines
- Proves that antithrombotic management of patients with venous stent implants is highly inconsistent, and no consensus exists.

Case scenario sent out to 106 experts

30%: VKA 12 months

15%: DOAC 6 months followed by antiplatelet agent

13%: VKA 6 months followed by antiplatelet agent

11%: DOAC 3-6 months

...

12%: VKA or DOAC for life

% refers to the proportion of physicians currently practising the particular antithrombotic regimen

Journal of Vascular Surgery®

SOCIETY FOR VASCULAR SURGERY® DOCUMENTS

(J Vasc Surg 2012;55:1449-62.)

Early thrombus removal strategies for acute deep venous thrombosis: Clinical Practice Guidelines of the Society for Vascular Surgery and the American Venous Forum

Mark H. Meissner, MD,^a Peter Gliviczki, MD,^b Anthony J. Comerota, MD,^c Michael C. Dalsing, MD,^d Bo G. Eklof, MD,^e David L. Gillespie, MD,^f Joann M. Lohr, MD,^g Robert B. McLafferty, MD,^h M. Hassan Murad, MD,ⁱ Frank Padberg, MD,^j Peter Pappas, MD,^k Joseph D. Raffetto, MD,^l and Thomas W. Wakefield, MD,^m Seattle, Wash; Rochester, Minn; Toledo, Ohio; Indianapolis, Ind; Helsingborg, Sweden; Rochester and New York, NY; Cincinnati, Ohio; Springfield, Ill; Newark, NJ; West Roxbury, Mass; Ann Arbor, Mich

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Antithrombotic Therapy for VTE Disease :
Antithrombotic Therapy and Prevention of
Thrombosis, 9th ed: American College of
Chest Physicians Evidence-Based Clinical
Practice Guidelines

... the **optimal duration of anticoagulation after the placement of venous stents in the setting of early thrombus removal has not been adequately studied**

In patients with acute DVT of the leg who undergo thrombosis removal, we recommend the **same intensity and duration of anticoagulant therapy** as in similar patients who do not undergo thrombosis removal.

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[Evidence-Based Medicine]

 CHEST

Antithrombotic Therapy for VTE Disease CHEST Guideline and Expert Panel Report



*Clive Kearon, MD, PhD; Elle A. Akl, MD, MPH, PhD; Joseph Ormelas, PhD; Allen Blaivas, DO, FCCP;
David Jimenez, MD, PhD, FCCP; Henri Bounameaux, MD; Mennó Huisman, MD, PhD;
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Scott M. Stevens, MD; Janine R. E. Vintch, MD, FCCP; Philip Wells, MD; Scott C. Woller, MD;
and COL Lisa Moores, MD, FCCP*



No mention in ACCP 2016 update

Questions that are unanswered for patients with IFDVT and venous stent implants

- **Can anticoagulation therapy be stopped after some time?**
 - Hypothesis 1: Stent may resolve underlying mechanical trigger for recurrence.
 - Hypothesis 2: Stent as foreign body may act as further risk factor for recurrence.
- **Are DOACs as effective as VKA?**
- **Is there a need for antiplatelet therapy?**
 - If yes, when and in which patients?

Swiss Venous Stent Registry

Subgroup of 113 patients treated for acute iliofemoral DVT

(two groups: *limited versus extended duration*)

- 72% left leg iliofemoral DVT
- 88% symptom duration less than 14 days
- 100% stent rate (19% stents below inguinal ligament)
- Mean follow-up duration: **26 months**

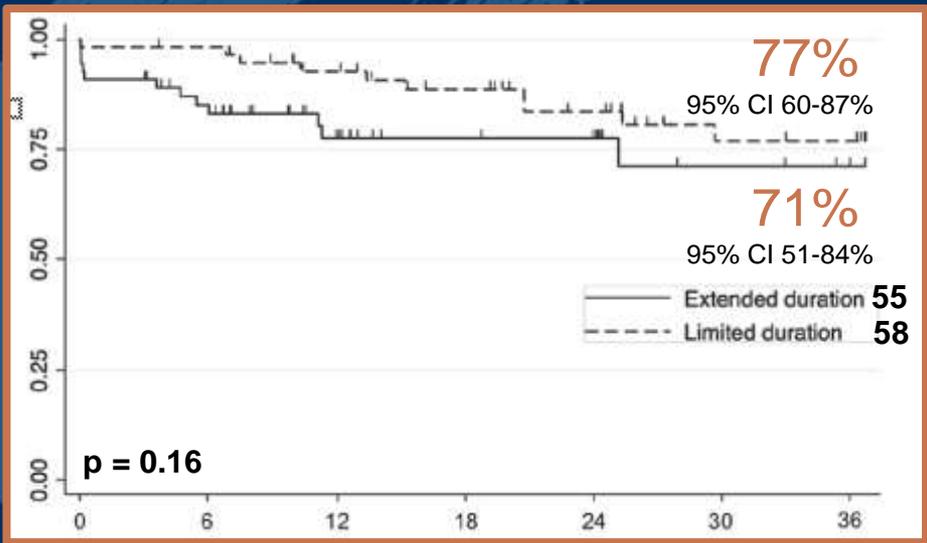
Baseline	Limited-duration (n = 58)	Extended-duration (n = 55)
Age (years)	38.1	53.7
Women	43 (74%)	27 (49%)
Known previous VTE	5 (9%)	19 (35%)
May Thurner Anatomy	38 (66%)	21 (38%)

Can anticoagulation therapy be stopped after some time?

Patency Rates at 3 Years

Extended vs. Limited Anticoagulation Group

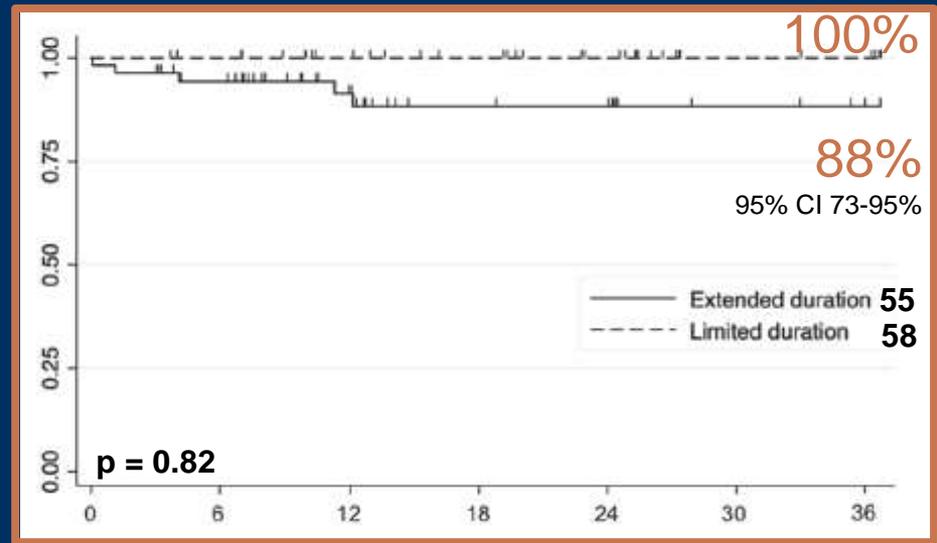
Primary Patency Rate



Follow-up, months

Total cohort: 73% (95% CI 61-82%)

Secondary Patency Rate



Follow-up, months

Total cohort: 95% (95% CI 88-98%)

Recurrent VTE Rates

**Thrombus removal + Stent
(iliofemoral DVT)**

Swiss Venous Stent Registry
3.5 events per 100 patient years
after cessation

**Anticoagulation only
(prox. + distal DVT)**

Carlier et al. 2010. Ann Intern Med.

Metaanalysis (10,050 patients)

7.6 events per 100 patient years
after cessation

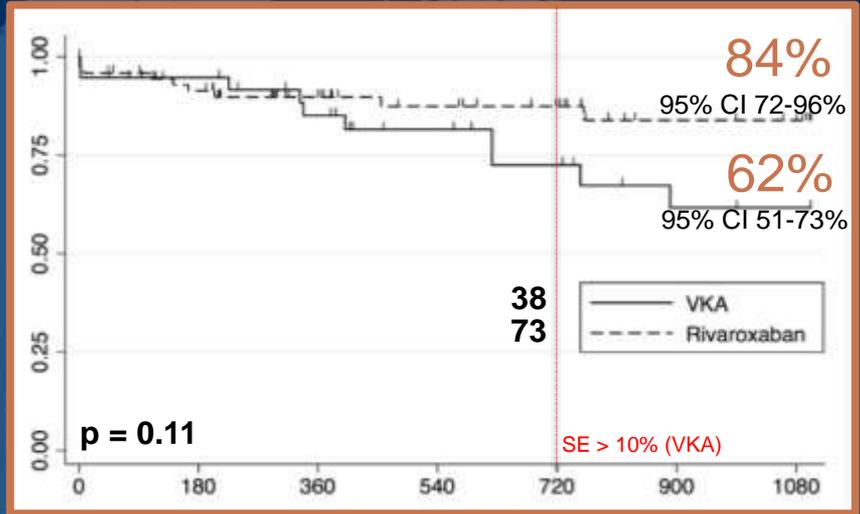
In selected patients (younger, otherwise healthy) with May-Thurner Syndrome, it appears safe to discontinue AT 3-12 months after endovascular treatment for IFDVT (RCT necessary!)

Are DOACs as effective as VKA?

Patency Rates at 3 Years

Rivaroxaban vs. VKA Group

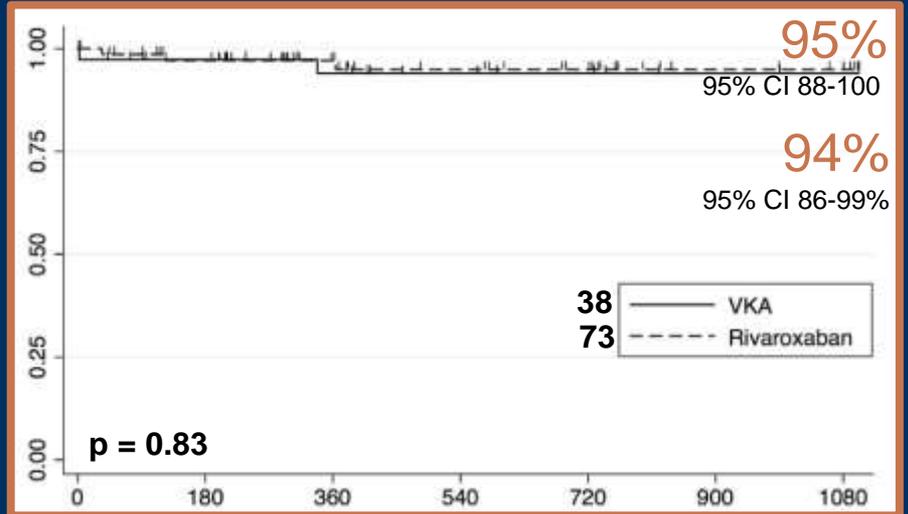
Primary Patency Rate



Follow-up, months

Total cohort: 73% (95% CI 61-82%)

Secondary Patency Rate



Follow-up, months

Total cohort: 95% (95% CI 88-98%)

In patients with acute IFDVT treated with catheter-based thrombus removal and venous stent placement, the effectiveness of rivaroxaban and VKA appeared to be similar.

Use of AP in VTE disease no stents

WARFASA: 403 patients

- Pat. with first unprovoked DVT and completed anticoagulation therapy
- Randomized to aspirin or placebo

ASPIRE: 822 patients

Recurrence rate per year

6.6% **aspirin** vs 11.2% **placebo**

HR 0.58 (95% CI: 0.36-0.93)

p = 0.02

4.8% **aspirin** vs 6.5% **placebo**

HR 0.74 (95% CI: 0.52-1.05)

p = 0.09

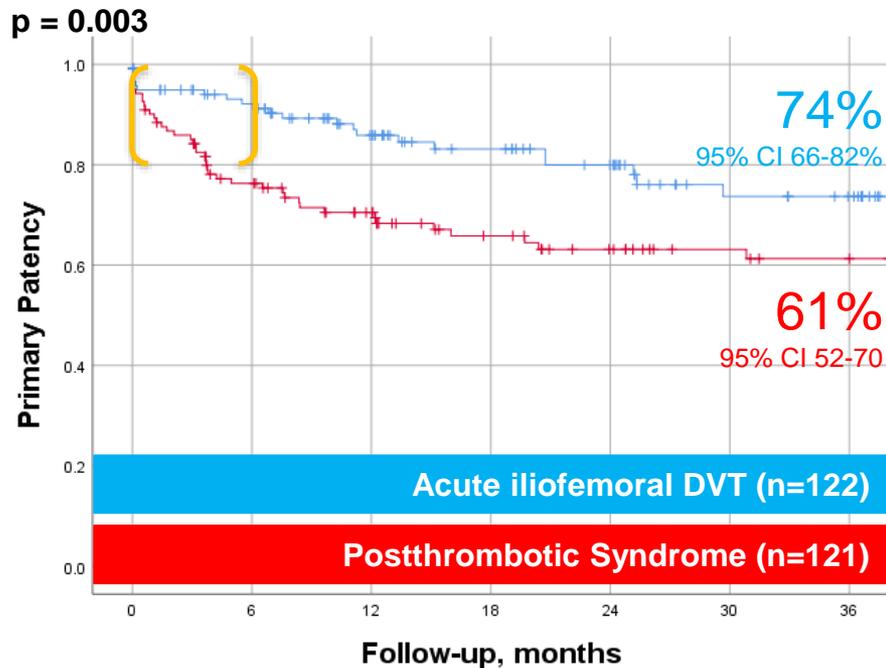
Swiss Venous Stent Registry: Only 5% received antiplatelet agents in addition to oral anticoagulation:

No subgroup analysis performed

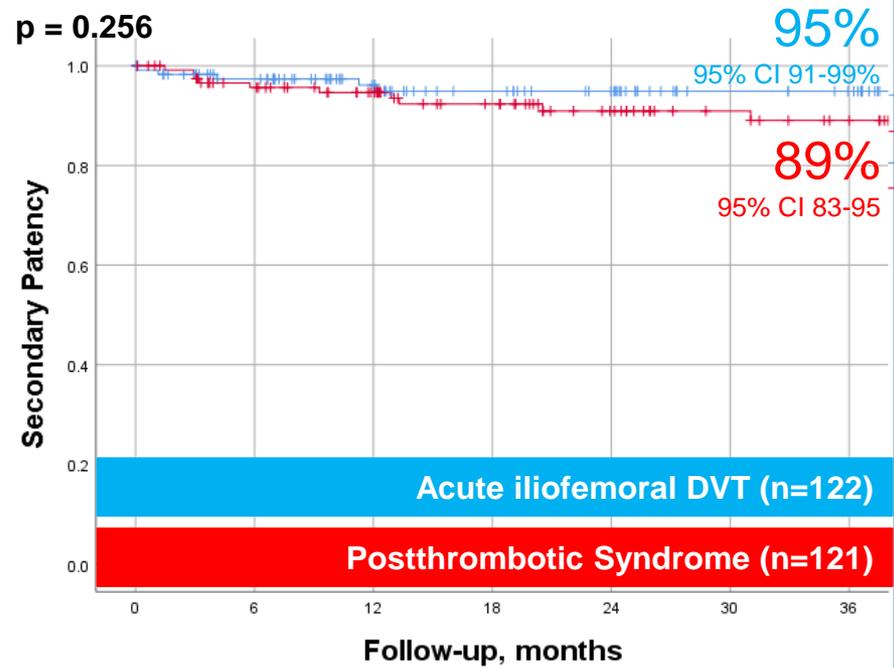
Swiss Venous Stent Registry

Patients with Venous Stent Implants

Primary Patency Rate



Secondary Patency Rate



Benefit of antiplatelet agent (aspirin) in addition to anticoagulation (rivaroxaban) will be under investigation in the ARIVA trial for patients with PTS.

Summary

- Antithrombotic management is inconsistent, and not specified in patients with venous stents.
- The effectiveness of rivaroxaban and VKA to maintain stent patency appears to be similar.
- It appears to be safe to discontinue anticoagulation therapy in selected patients.
- Late stent failure occurs (need for antithrombotic prophylaxis must be evaluated)
- The benefit of antiplatelet therapy in addition to anticoagulation in PTS patients is currently under investigation (ARIVA trial).

Thank you for your attention!



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