How to approach a patient with venous thrombosis?

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Vein thrombosis: sites

- thrombosis may occur in any vein.
VT treatment goals: to ...

- prevent thrombus growth
- re-establish vein patency
- reduce immediate complications (embolisms, pain, inflammation)
- reduce long-term complications (post-thrombotic syndrome)
- prevent recurrent events
VT treatment: phases

- Acute treatment
- Long-term treatment/prophylaxis
- Follow-up phase
Acute VT treatment: options

VT established

- Thrombectomy/thrombolysis
- Pain control compression
- Anticoagulant treatment
DVT: anticoagulant treatment

- prevents thrombus growth
- improves thrombus resolution
- reduces immediate complications

→ clear evidence from RCTs
Initial anticoagulant management

DVT

increased risk of bleeding?

yes

UFH*/Argatroban

no

LMWH/fondaparinux/Apixaban/Rivaroxaban

* APTT-adjusted
Predictors of bleeding

- previous major surgery (< 7 days)
- previous stroke (< 6 weeks)
- bleeding history
- anti-platelet agents
- severe liver disease (INR > 1.8)
- platelet count < 50,000/µl
Renal vein thrombosis (RVT)
Renal vein thrombosis (RVT)

- relatively uncommon
- predominantly a disease of children
- in newborns the 3rd most prevalent cause of TE
Renal vein thrombosis (RVT)

RVT

bilateral and renal impairment

yes

t-PA fibrinolysis 1-2 mg/kg b.w./24h

no

anticoagulant therapy (UFH/LMWH)
Renal vein thrombosis (RVT)

RVT

bilateral and renal impairment

yes

no

t-PA fibrinolysis 1-2 mg/kg b.w./24h for max. 3 days

anticoagulant therapy (UFH/LMWH)
Renal vein thrombosis (RVT)

- unilateral RVT

  renal impairment

  - yes
    - full dose (LMWH/UFH)
  - no
    - prophylactic dose (LMWH/UFH)
Renal vein thrombosis (RVT)

- relatively uncommon
- predominantly a disease of children
- in newborns the 3rd most prevalent cause of TE
- low risk of recurrence
Renal vein thrombosis (RVT)

RVT

anticogulant treatment

terminated after 3 months
Portal vein thrombosis

Risks:
- portal hypertension
- spleen infarction
- bowel infarction
- liver failure

may be asymptomatic
Portal vein thrombosis (PVT)

- PVT
  - acute?
    - yes
      - full-dose LMWH/UFH
    - no
      - prophylactic LMWH/UFH*

* depending on thrombus resolution
Portal vein thrombosis

Risks:
- portal hypertension
- spleen infarction
- bowel infarction
- liver failure

may be asymptomatic

risk of recurrence:
5% per year w/o anti-coagulation
Upper extremity DVT (UEDVT)

incidence: 
≈ 5 – 10% of VT

symptoms: 
arm swelling, pain, discolloration

complications: 
PE (≈ 5%) 
PST of the arm
UEDVT: specific risk factors

- central venous catheter
  ($\approx 75\%$ of UEDVT)

- insertion of a pace maker

- thoracic outlet syndrome (TOS)
UEDVT: treatment approach

UEDVT with CVT

remove CVT

LMWH/fondaparinux/UFH for 3 months

CVT, central venous catheter
UEDVT: treatment approach

unprovoked UEDVT

TOS screening

negative
anticoagulation for at least 3 months

positive
anticoagulation until surgery

TOS, thoracic outlet syndrome
Vein thrombosis: sites

- Deep vein thrombosis (DVT)
- Renal vein thrombosis
- Splanchnic vein thrombosis (mesenteric/portal)
- upper extremity DVT (UEDVT) (Paget-von-Schroetter disease)
- Retinal vein thrombosis
Retinal vein thrombosis

associated with hypertension?

- yes: anti-hypertensive treatment
- no: anticoagulation at prophylactic dose for 2-6 weeks*

* no RCT available
VT treatment: phases

- Acute treatment
- Long-term treatment/prophylaxis
- Follow-up phase
Cancer and thrombosis

*Trouseau-mouse*

* Boccaccio C et al., Nature 2005; 434: 396 - 400
Cancer screening

- Occult cancer is a thrombophilic risk factor.

⇒ This justifies a cancer screening in patients presenting with a spontaneous thrombosis
Cancer and thrombosis

VT treatment: phases

- Acute treatment
- Long-term treatment/prophylaxis
- Follow-up phase
VT: recurrence

- The risk of recurrence is high in patients fulfilling the clinical criteria of thrombophilia (approx. 30% over 10 years).
Thrombophilia: clin. criteria

- unprovoked event
- first thrombotic event at young age
- thrombosis at uncommon site
- familial history
- recurrent events
Thrombophilia likely

- Should the patient referred to extended anticoagulant treatment w/o further screening?

- Do we need a thrombophilia screen? If yes, which parameters should be included?
Incidence of recurrent thrombosis

Christiansen SC et al. JAMA 2005; 293: 2352 - 2361
Thrombophilia work-up (I)

- Lupus anticoagulant/APA
- Jak-2-polymorphism (splanchnic VT)
- PNH-testing
Clinical decision finding

LA/APA positive
PNH positive

extension of anticoagulant treatment
Thrombophilia work-up (II)

- APC-resistance/FV-Leiden
- Antithrombin
- Protein-C/-S-deficiency
- Prothrombin-G20210A-mutation
Clinical decision finding (II)

- first unprovoked DVT
  - strong thrombophilic risk factor (AT-deficiency)
  - argues pro indefinite oral anticoagulant treatment
Long-term management

oral anticoagulant treatment > 1 year

re-evaluation of the risk-benefit ratio
Conclusion

- Thrombosis may occur at any vein.

- Anticoagulant treatment is the treatment of choice for nearly all types of venous thrombosis.

- The risk of recurrence depends on the localisation of thrombosis.

- In patients receiving extended oral anticoagulant treatment the risk-benefit ratio should be regularly re-evaluated.