



**ICT 2023**

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Congress on Thrombosis

# How long should you treat children with DVT

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## Declaration of Conflict Of Interest

- I have no potential conflict of interest to report  
✘
- I have the following potential conflict(s) of interest to report

# How long should we treat children with DVT?

## Venous Thromboembolism (VTE)

Deep Venous Thrombosis (DVT) and Pulmonary Embolism (PE)

Incidence lower than in adults, increased in last decade

- Use of invasive procedures and CVC
- Access to more sensitive imaging modalities
- Improved survival of chronically ill children
- Provoked (95%) vs Unprovoked (5%)

Increased morbidity and mortality

- Mortality 2-4%(most due to PE)
- Post-thrombotic syndrome (PTS) 9,5-70%

# How long should we treat children with DVT?

## Why should we treat VTE?

- Prevention local extension and embolization of the thrombus
- Aid in resolving the existing thrombus
- Prevent embolization (PE)
- Prevent secondary VTE (recurrent)
- Minimize long-term complications (PTS)

## How should we treat VTE?

- LMWH vs UFH
- LMWH vs vit K antagonist
- DOACs vs vitamin K antagonist

## How long should we treat children with DVT?

- Duration of therapy predicated risk of recurrent VTE

# How long should we treat children with DVT?

## Provoked (identifiable underlying conditions) VTE?

- Central Venous Catheter (CVC)
  - 90% VTE in neonates
- Surgery (orthopedic)
- Trauma
- Infection
- Immobilization/obesity
- Chronic conditions (Nephrotic syndrome, Antiphospholipid syndrome)
- Malignancy
- Estrogen-containing oral contraceptive pills

## Unprovoked (not identifiable underlying conditions) VTE?

# How long should we treat children with DVT?

Provoked (identifiable underlying conditions) VTE?

Unprovoked (not identifiable underlying conditions) VTE?

- Rare
- Risk of recurrence higher (21% at a median time of 3,5 years)
- Definition of unprovoked?
  - Dehydration/Oral contraceptives
- Test for inherited thrombophilia
  - Factor V Leiden mutation
  - Prothrombin 20210 mutation
  - Antithrombin deficiency
  - Protein C deficiency
  - Protein S deficiency
  - Antiphospholipid antibodies

# How long should we treat children with DVT?

## Provoked (identifiable underlying conditions) VTE?

-“Standard” anticoagulation duration: 3-6 months (extrapolated from adults)

-The Kids-DOTT Randomized Clinical Trial (2008-2021)

417 patients > 21 Years

Effect of Anticoagulant Therapy for 6 Weeks (n=207) vs 3 Months (n=210)

Recurrence and Bleeding Events

### **Conclusions and relevance**

Among patients younger than 21 years of age with **provoked venous thromboembolism, anticoagulant therapy for 6 weeks** compared with 3 months met noninferiority criteria on the trade-off between recurrent venous thromboembolism risk and bleeding risk.

*JAMA. 2022; 327.doi:10.1001/jama.2021.23182*

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### **Limitations**

Few neonates

Few EP /cancer patients

LMWH>DOACs

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# How long should we treat children with DVT?

## Provoked (identifiable underlying conditions) VTE?

-Low risk

-Patient has no prior history of VTE

-VTE is not severe or life threatening

-Provoking risk factor is transient (CVC, recent surgery, trauma)

-Thrombus has resolved or is nonocclusive within 6 weeks

6 weeks

-“Standard-risk”

3-6 months

## Unprovoked (not identifiable underlying conditions) VTE?

-Rare

-Risk of recurrence higher (21% at a median time of 3.5 A)

-Test for inheritable thrombophilia

6-12 months

# How long should we treat children with DVT?

## Antiphospholipid Syndrome (APS)

- Patients with and without LES
- Recurrent TVE

**LIFELONG**  
**(Vit K antagonists)**

## Recurrent unprovoked VTE

## Secondary prevention

### **Prior history of provoked VTE** with ongoing/recurrent risk factors

- Long term total parental nutrition
- Hemodialysis
- Cardiopathy (univentricular heart, mechanical valve replacement)
- Nephrotic syndrome
- Inflammatory bowel disease (disease flares)

**LONG TERM**

# How long should we treat children with DVT?

**Risks of recurrence VTE vs anticoagulant-associated bleeding**  
**Quality of life**  
**Cost of care**

**The Kids-DOTT Randomized Clinical Trial (2008-2021)**

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**Studies to stratify children with VTE**  
**Low risk/ Intermediate risk/High risk**

# How long should we treat children with DVT?

## Provoked VTE?

-Low risk

-Standard risk

6 weeks

3-6 months

6-12 months

## Unprovoked VTE?

Antiphospholipid Syndrome (APS)

Recurrent unprovoked VTE

LONG TERM

Secondary prevention

LIFELONG