Supposed treatment with anticoagulants

- **Life-threatening bleeding**
  - Immediate intervention or surgery

- **Severe bleeding (haemodynamically stable)**
  - Intervention or surgery ≥ 1h*

- **Mild bleeding**
  - Intervention or surgery ≥ 24h

**Stop anticoagulant**

- Platelet count, INR, aPTT, thrombin time, fibrinogen concentration
- **Anticoagulant drug level**
  - Drug level elevated
  - Drug level not elevated

**Application of reversal agents**
- Red blood cell units ± fresh frozen plasma (1:1)
- Tranexamic acid (1g IV)

**Consider reversal agents**
- (Severe bleeding, long half-life, high drug level, urgent surgery)
  - Red blood cell units as needed
  - Consider tranexamic acid

- **Consider stopping anticoagulant**
  - Red blood cell units as needed
  - Tranexamic acid if needed

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**Relevant anticoagulant drug-levels**

**UFH:**
- aPTT > internal reference (e.g. 35 s)
- anti-Xa activity > 0.1 U/mL
- (thrombin time > internal reference, e.g. 30s)

**LMWH:**
- anti-Xa activity > 0.15 U/mL

**VKA:**
- INR > 1.3
  - (PT > internal reference; Quick-test < 70%)

**Rivaroxaban:**
- anti-Xa activity > 30-50 ng/mL

**Apixaban:**
- anti-Xa activity > 30-50 ng/mL

**Dabigatran:**
- diluted thrombin time (or ecarin clotting time) > 30-50 ng/mL

**Edoxaban:**
- anti-Xa activity > 30-50 ng/mL

* time interval until laboratory results are available

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**Reversal agents**

**UFH:**
- 1:1 units of protamin IV per unit UFH given in previous 3 hours (if stop within previous hour or anti-Xa activity > 0.35 U/mL), 5000 IU maximum
- ½:1 units of protamin IV per unit UFH given in previous 3 hours (if UFH stop within previous 3 hours or anti-Xa activity > 0.1 U/mL), 2500 IU maximum

**LMWH:**
- 5000 IU protamine sulphate IV if therapeutic dose LMWH and last application < 8h or anti-Xa > 0.5 U/mL
- 2500 IU protamine sulphate IV if therapeutic dose LMWH and last application < 12h or anti-Xa > 0.3 U/mL

**VKA:**
- Prothrombin complex concentrate: 2400 IU IV (or 30 U/kg body weight in patients below 30 kg)
- Vitamin K 10 mg IV (daily until recovery)

**Rivaroxaban/ Apixaban/ Edoxaban:**
- Prothrombin complex concentrate: 50 IU per kg body weight IV

**Dabigatran:**
- Idarucizumab (Praxbind®) 2 x 2.5 g IV