

Streptokinase

● INDICATIONS AND DOSE

Intravascular thrombosis

- ▶ INITIALLY BY INTRAVENOUS INFUSION
- ▶ Child 1 month–11 years: Initially 2500–4000 units/kg, dose to be given over 30 minutes, followed by (by continuous intravenous infusion) 500–1000 units/kg/hour for up to 3 days until reperfusion occurs
- ▶ Child 12–17 years: Initially 250 000 units, dose to be given over 30 minutes, followed by (by continuous intravenous infusion) 100 000 units/hour for up to 3 days until reperfusion occurs

- **UNLICENSED USE** Not licensed for use in children.
- **CONTRA-INDICATIONS** Avoid in children who have had streptococcal infection in the last 12 months
- **CAUTIONS** Atrial fibrillation · cavernous pulmonary disease · cerebrovascular disease · mitral valve defect · recent delivery or abortion · septic thrombotic disease
- **INTERACTIONS** → Appendix 1: streptokinase
- **SIDE-EFFECTS**
 - ▶ **Common or very common** Arrhythmias · asthenia · diarrhoea · epigastric pain · headache · malaise · pain
 - ▶ **Uncommon** Respiratory arrest · splenic rupture
 - ▶ **Rare or very rare** Arthritis · eye inflammation · hypersensitivity · nephritis · nerve disorders · neurological effects · pulmonary oedema non-cardiogenic (caused by reperfusion) · shock · vasculitis
- **ALLERGY AND CROSS-SENSITIVITY** Contra-indicated if previous allergic reaction to either streptokinase or anistreplase (no longer available). Prolonged persistence of antibodies to streptokinase and anistreplase (no longer available) can reduce the effectiveness of subsequent treatment; therefore, streptokinase should not be used again beyond 4 days of first administration of either streptokinase or anistreplase.
- **DIRECTIONS FOR ADMINISTRATION** For *intravenous infusion*, reconstitute with Sodium Chloride 0.9%, then dilute further with Glucose 5% or Sodium Chloride 0.9% after reconstitution. Monitor fibrinogen concentration closely; if fibrinogen concentration less than 1 g/litre, stop streptokinase infusion and start unfractionated heparin; restart streptokinase once fibrinogen concentration reaches 1 g/litre.
- **MEDICINAL FORMS** No licensed medicines listed.

Urokinase

● INDICATIONS AND DOSE

Occluded arteriovenous shunts, catheters, and indwelling central lines

- ▶ TO THE DEVICE AS A FLUSH
- ▶ Neonate: 5000–25 000 units, inject directly into occluded catheter or central line, dilute dose in sodium chloride 0.9% to fill catheter dead space **only**. Leave for 20–60 minutes then aspirate the lysate and flush with sodium chloride 0.9%.
- ▶ Child: 5000–25 000 units, inject directly into occluded catheter or central line, dilute dose in sodium chloride 0.9% to fill catheter dead space **only**. Leave for 20–60 minutes then aspirate the lysate and flush with sodium chloride 0.9%

- **CONTRA-INDICATIONS** Recent stroke

- **CAUTIONS** Atrial fibrillation · cavernous pulmonary disease · mitral valve defect · recent delivery · septic thrombotic disease · severe cerebrovascular disease
- **INTERACTIONS** → Appendix 1: urokinase
- **SIDE-EFFECTS**
 - ▶ **Common or very common** Artery dissection · embolism and thrombosis · stroke
 - ▶ **Uncommon** Renal failure
 - ▶ **Rare or very rare** Vascular pseudoaneurysm
- **BREAST FEEDING** Manufacturer advises avoid—no information available.
- **DIRECTIONS FOR ADMINISTRATION** May be diluted, after reconstitution, with Sodium Chloride 0.9%.

- **MEDICINAL FORMS** There can be variation in the licensing of different medicines containing the same drug.

Powder for solution for injection

- ▶ **SYNER-KINASE** (Syner-Med (Pharmaceutical Products) Ltd)

Urokinase 10000 unit Syner-KINASE 10,000unit powder for solution for injection vials | 1 vial [PoM] £35.95 (Hospital only)

Urokinase 25000 unit Syner-KINASE 25,000unit powder for solution for injection vials | 1 vial [PoM] £45.95 (Hospital only)

Urokinase 100000 unit Syner-KINASE 100,000unit powder for solution for injection vials | 1 vial [PoM] £112.95 (Hospital only)

Urokinase 250000 unit Syner-KINASE 250,000unit powder for solution for injection vials | 1 vial [PoM] (Hospital only)

Urokinase 500000 unit Syner-KINASE 500,000unit powder for solution for injection vials | 1 vial [PoM] (Hospital only)

3.2 Thromboembolism

Venous thromboembolism

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Venous thromboembolism prophylaxis

Low-dose heparin (unfractionated) p. 97 by subcutaneous injection is used to prevent thrombotic episodes in 'high-risk' patients; laboratory monitoring of APTT or anti-Factor Xa concentration is also required in prophylactic regimens in children. Low molecular weight heparins, aspirin p. 93 (antiplatelet dose), and warfarin sodium p. 99 can also be used for prophylaxis.

The following guidance on reducing the risk of venous thromboembolism applies to children over 16 years and is based on NICE guideline 89 (www.nice.org.uk/guidance/ng89).

EvGr All children over 16 years old should undergo a risk assessment to identify their risk of venous thromboembolism and bleeding on admission to hospital. **⚠** Commonly used risk assessment tools can be found at www.nice.org.uk/guidance/ng89/resources. Children over 16 years old considered to be at high risk of venous thromboembolism include those who are anticipated to have a substantial reduction in mobility, those with obesity, malignant disease, history of venous thromboembolism and thrombophilic disorder. Pregnancy and the postpartum period are also risk factors for venous thromboembolism.

There are two methods of thromboprophylaxis: mechanical and pharmacological. Options for mechanical prophylaxis are anti-embolism stockings that provide graduated compression and produce a calf pressure of 14–15 mmHg, and intermittent pneumatic compression. **EvGr** Anti-embolism stockings should be worn day and night until the child is sufficiently mobile; they should not be offered to children over 16 years old admitted with conditions such as severe leg oedema, or local conditions (e.g. gangrene, dermatitis).

When using pharmacological prophylaxis, in most cases, it should start as soon as possible or within 14 hours of admission. Children over 16 years of age with risk factors for bleeding (e.g. thrombocytopenia, acquired or untreated inherited bleeding disorders) should *only* receive