

## Guidelines for the Use of Recombinant Activated Factor VII (rFVIIa, Eptacog alfa [activated], NovoSeven®) in Major Haemorrhage.

### Introduction

Consider rFVIIa use only when the following general points apply:

- Severe haemorrhage.
- General management of patient is optimal – especially correction of hypothermia and acidaemia as far as is possible.
- Timing of administration is important. For maximum benefit, this should be before the onset of complications associated with massive transfusion.
- Do not use rFVIIa if overall outlook is so poor that stopping haemorrhage is unlikely to improve outcome.

### Indications for the use of rFVIIa

- Blood replacement at least 1.5 times patient's blood volume in 24 h (i.e. >15 units) *and*
- Severe ongoing haemorrhage e.g. from multiple sites, particularly bleeding from large raw areas, despite attempting local control measures, or continued brisk blood loss (>200mL/hr) despite optimum conventional pharmacological and blood product support. In particular attempts must be made to raise the fibrinogen level to >1g/L and platelets >20x10<sup>9</sup>/L prior to rFVIIa use *and*
- No foreseeable immediate surgical correction of bleeding *or*
  - Non-surgical haemorrhage associated with coagulopathy refractory to conventional management *or*
  - Severe obstetric haemorrhage requiring consideration of internal iliac artery ligation, uterine artery embolisation or hysterectomy or severe obstetric haemorrhage in a patient refusing blood products, when exsanguination appears possible.

Patients meeting these criteria have upto a 40% 24-hr mortality and 70% 7-day mortality [Clark AD, Gordon WC, Tait RC. *Vox Sanguinis* 2004; 86: 120—124]

### Authorisation

The use of rFVIIa must be approved by the on-call Consultant Intensivist and approved by the on-call Consultant Haematologist.

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Directorate of Intensive Care.

<http://www.rluhicu.org>

Tel. Direct line: 0151 706 2400, Secretariat: 0151 706 3191, Fax: 0151 706 5646.

*Clinical Director:* Dr. GR Masterson

*Consultants in Intensive Care:*

Dr. SJ Harper, Dr. GW Marx, Dr. LA McCrossan, Dr. SM Mostafa, Dr. R Wenstone

## Dose and administration.

- Adequate coagulation factor and platelet replacement are essential.
- Acidosis and hypothermia should be corrected as far as possible.
- rFVIIa (*NovoSeven*<sup>®</sup>) 100 µg/kg rounded up to the next whole vial.
- Give by bolus injection over 2–5 minutes through any available vein.
- Do *not* mix with infusion solutions. Do *not* give in a drip.
- Dose may be repeated after 2 hours if bleeding continues and there was a response to first dose.
- If response is inadequate second dose should be 120 µg/kg rounded up to the next whole vial.

## Assessment of response

Response should be assessed on clinical grounds:

Reduction or cessation of haemorrhage

Blood product support pre/post rFVIIa administration.

If there is no response after 2 doses further doses should not be administered without careful consideration.

## Contra-indications

rFVIIa may occasionally be associated with thrombosis – avoid in micro-vascular surgery and in patients with severe vascular disease.

Use with caution if evidence of established disseminated intravascular coagulation.

Allergy to mouse, hamster or bovine proteins.

## Assessment of safety

A coagulation screen and d-dimers must be checked immediately before and 15 minutes after giving rFVIIa. Keep a careful check on fibrinogen levels.

Prothrombin time may be less than 10 s immediately post-rFVIIa.

Consider subsequent screening for DVT after 3–5 days.

## Audit

Names of all patients who receive rFVIIa on the ITU must be passed to the Clinical Trials Nurses, Audit Nurses or RW.

## Acknowledgements:

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