

Warfarin reversal – Emergent Surgery or Invasive Procedure and INR ≥ 2

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PURPOSE: To provide guidelines for reversal of Warfarin in a patient who needs an emergent surgery or invasive procedure and has an INR ≥ 2.

Kcentra (prothrombin complex concentrate, contains plasma-derived Factors II, VII, IX and X) is given instead of plasma, when there is insufficient time for plasma and vitamin K to adequately reverse the INR prolongation due to warfarin and where a delay in the procedure would pose a significant risk of serious morbidity or mortality. Vitamin K is given to all patients. Kcentra should not be used for an INR < 2 or to reverse warfarin prior to non-emergent surgery because of the risk of thrombosis.

POLICY: The following are guidelines for the reversal of Warfarin in the adult patient (>18 years old) who needs an emergent surgery or invasive procedure (in < 24 hours, per FDA approval), with an INR ≥ 2, and where we do not have enough time for plasma and vitamin K to adequately reverse the INR

PROCEDURE STATEMENTS:

Guidelines:

- Confirm that the patient is on warfarin.
- Obtain CBC and platelet count, creatinine, type and cross, and INR.

IF THE PATIENT HAS AN INR ≥ 2 AND NEEDS AN EMERGENT SURGERY OR INVASIVE PROCEDURE:

Stop Warfarin

Give the following

1. Kcentra (prothrombin complex concentrate, contains plasma-derived Factors II, VII, IX and X) - one dose only, in Units of Factor IX /kg.

Dose based on body weight up to, but not exceeding 100kg.

Pre-treatment INR	2 - < 4	4 - 6	> 6
Dose in units FIX/ kg	25 u/kg	35 u/kg	50 u/kg
Maximum dose	2500 units max	3500 units max	5000 units max

2. Vitamin K

- Vitamin K 10 mg IV (dilute in NS or D5W and give slowly over 30 minutes.) Monitor for anaphylaxis. – **use this dose if the patient will not require warfarin anticoagulation soon after surgery and bleeding risks are high.**
- Vitamin K 2.5 - 5 mg IV (dilute in NS or D5W and give slowly over 30 minutes.) Monitor for anaphylaxis. – **use this dose if the patient is high risk for thrombosis and will require warfarin anticoagulation soon after surgery.**

Contraindications to use of Kcentra for Warfarin reversal

- Kcentra should not be for an INR < 2, non-emergent surgery or high risk of thrombosis
- Disseminated intravascular coagulopathy (DIC)
- History of heparin induced thrombocytopenia (HIT)
- ***Kcentra increases the risk of arterial and venous thrombosis.***
There is no data on the use of Kcentra in patients with the following conditions. Patients with these conditions were excluded from the study used for FDA approval of Kcentra for warfarin reversal. Caution is advised:
 - Arterial or venous thrombosis within 3 months
 - TIA or unstable angina within 3 months
 - Critical aortic stenosis
 - Severe peripheral vascular disease
 - Known antiphospholipid antibody syndrome

Follow up labs

INR Goal is ≤ 1.5

INR should be checked 30 minutes after giving Kcentra

If INR still > 1.5 give plasma 15 ml/kg IV

Note: Patients, on warfarin, who also have liver disease may have deficiencies of more than just the vitamin K-dependent clotting factors. In this situation Kcentra (which replaces only FII, VII, IX and X) may not adequately reverse the INR. These patients may need plasma in addition to Kcentra..