Children's Mercy
KANSAS CITY
125 Years and Growing

Warfarin Antidotes

- **Antidotes:**
    - Vitamin K (phytonadione)
    - Kcentra
    - FFP (fresh frozen plasma)
- Choice and dose is dependent on the clinical problem-no bleeding vs. significant bleeding and need for future warfarin therapy.
- **If patient requires rapid warfarin reversal but has no bleeding, insignificant bleeding or bruising:**
    - **Vitamin K 30 mcg/kg by slow IV infusion over 10-20 minutes** (to avoid anaphylaxis). Max dose **2 mg.**
        - This weight adjusted regimen is safer for pediatric patients than a universal dosage (i.e. 0.5-2mg) as recommended for adults. Even 0.5mg (sufficient for many adults) is likely to be too high for most young children. Seriously ill children with liver dysfunction may require more than a single dose. Oral vitamin K is effective in adults but the INR fall is slower than IV injection.
    - The **preferred route is IV**, but in a child with **poor or no venous access, the PO or SQ route may be used**, particularly if the INR is 6-10. The PO route is preferred.
    - The IM route is NOT recommended.
- **If patient has significant bleeding:**
    - Not life threatening and will not cause morbidity:
        - **Vitamin K 30 mcg/kg by slow IV infusion over 10-20 minute**s (to avoid anaphylaxis). Max dose **2 mg.**
        - **Kcentra**
            - Administer with vitamin K concurrently.
            - Dosing based on pretreatment INR:

Pretreatment INR	Dose (in units of factor IX activity)	Maximum Dose
2 to <4	25 units/kg	2500 units
4 to 6	35 units/kg	3500 units
>6	50 units/kg	5000 units

        - Check INR stat 30 minutes after end of Kcentra infusion
            - If INR<1.5, proceed with procedure.
            - If INR>1.5 or bleeding not controlled, contact the Coagulation Consult Service immediately.
        - **Consider FFP 20 mL/kg IV.**

    - Life threatening and will cause morbidity:

        - **Vitamin K 30 mcg/kg IV by slow IV infusion over 10-20 minutes** (to avoid anaphylaxis). Max dose **5mg.**

        - **And FFP 20 mL/kg IV.**

        - **Kcentra**

            - Administer with vitamin K concurrently.
            - Dosing based on pretreatment INR:

Pretreatment INR	Dose (in units of factor IX activity)	Maximum Dose
2 to <4	25 units/kg	2500 units
4 to 6	35 units/kg	3500 units
>6	50 units/kg	5000 units

            - Check INR stat 30 minutes after end of Kcentra infusion
                - If INR<1.5, proceed with procedure.
                - If INR>1.5 or bleeding not controlled, contact the Coagulation Consult Service immediately.
        - Consider giving **NovoSeven RT 90 micrograms/kg IV** (alternate choice).

- **Safety of IV administration**

    - The standard product for IV administration of Vitamin K at CMH is the 2mg/mL concentration, which is readily available in medication stations on every inpatient unit.

    - This dilute form (2mg/mL) along with slow IV infusion over 10 to 20 minutes may avoid anaphylaxis that has been associated with IV administration of vitamin K.

- Where the concentrated 10mg/mL product is available, it must be diluted to 2mg/mL with D5W or NS prior to administration.

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These guidelines do not establish a standard of care to be followed in every case. It is recognized that each case is different and those individuals involved in providing health care are expected to use their judgment in determining what is in the best interests of the patient based on the circumstances existing at the time. It is impossible to anticipate all possible situations that may exist and to prepare guidelines for each. Accordingly these guidelines should guide care with the understanding that departures from them may be required at times.

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