

Management of Supratherapeutic INRs:

(Sixth ACCP Consensus Conference on Antithrombotic Therapy, Chest 2001:33S-34S. These recommendations are unchanged from 1998 ACCP recommendations.)

1. INR < 5.0 with no significant bleeding, lower the Warfarin dose or omit a dose and resume therapy at a lower dose when the INR is at the therapeutic level. If the INR is only minimally greater than the therapeutic range (i.e., ≤ 0.5), no dose reduction may be required.
2. INR > 5.0 but < 9.0 with no significant bleeding there are two appropriate alternatives: Omit the next one or two Warfarin doses, monitor the INR more frequently and resume therapy at a lower dose when the INR is at the therapeutic level. Omit the dose and give Vitamin K 1-2.5mg orally^{*,**}, particularly if the patient is at increased risk of bleeding. If patient needs surgery and have 24 hours to normalize INR, give Vitamin K 2-4mg orally. If INR still high after 24 hours, given an additional 1-2mg of Vitamin K.
3. INR > 9.0-20.0 with no significant bleeding, hold Warfarin therapy and administer a higher dose of Vitamin K, 3-5mg orally, with the expectation that the INR will be reduced substantially in 24-48 hours. Monitor the INR more frequently and administer additional Vitamin K if necessary. Resume therapy at a lower dose when the INR reaches the therapeutic level.
4. For patients with INR > 20 with serious bleeding or those who need emergent surgery, hold Warfarin and give Vitamin K 10mg by slow IV infusion, supplemented with fresh or fresh, frozen plasma or prothrombin complex concentrate, depending on the urgency. For patients with supratherapeutic INR needing emergent surgery, blood product treatment with FFP is indicated. This should be coordinated with the LOD for continuous monitoring of INR. Administration of Vitamin K can be repeated every 12 hours.
5. For patients with life-threatening bleeding, hold Warfarin therapy and administer prothrombin complex supplemented by Vitamin K 10mg by slow IV infusion. Repeat this therapy as necessary depending on the INR, usually every 6 hours.
6. If the continuation of Warfarin therapy is indicated after the administration of high doses of Vitamin K, then heparin can be given until the effects of Vitamin K have been reversed and the patient becomes responsive to Warfarin again.

*Vitamin K is available as 5mg scored tablets. Alternatively, Vitamin K for injection 10mg/ml can be used to give low oral doses (1-3mg).

** Oral Vitamin K has been shown to be more reliable in reducing an elevated INR than subcutaneous Vitamin K in equivalent doses:
51 patients with average INR=5.8-6.2 randomized to 1mg Vit K orally vs. SC.
24hours after dose: 24% of patients receiving SC with INR in therapeutic range vs. 59% of patients receiving oral Vit K. (OVWAC, OVWACII) Crowther, MA et al.
Treatment of Warfarin-associated coagulopathy with oral vitamin K: a randomized controlled trial. Lancet 2000;356:1551-1553.

Level of Evidence: 2C – observational studies or generalizations from randomized controlled trials where the trade-off between benefit and risk is less certain.