

# Antivitamin K overdose: how to use vitamin K1 ?

P. Alexandrzak<sup>1</sup>, M. Lancel<sup>1</sup>, M.H. Dubus<sup>1</sup>, B. Luyssaert<sup>1</sup>.  
<sup>1</sup>CH de Seclin, GHSC, Seclin, France.

### Background:

In 2008, the French National Authority for Health produced recommendations regarding the management of patients treated with antivitamin K in situation of overdose, bleeding or risk of bleeding.

### Purpose:

A retrospective study was conducted in our hospital to evaluate conformity of prescribing practices to these recommendations and to propose improvement actions if necessary.

### Material and methods:

All prescriptions of vitamin K1 were extracted from our software for a 2-month period, excluding the prescriptions from the maternity ward and pediatrics. Only the patients treated with antivitamin K were selected. We then collected the necessary data to determine if the prescriptions were consistent with the recommendations:

- **target INR** (International Normalized Ratio)
- **route of administration:** oral, intramuscular (IM) or intravenous (IV)
- **posology**
- **indication:** hemorrhage, asymptomatic overdose or unplanned surgical act

### Results:

42 prescriptions of vitamin K1 were retrieved, all of them were intended for patients whose target INR was between 2 and 3. The administration was mainly done orally (86%), less frequently by IV (12%) and only one (2%) was IM.

The posology varied between 1 and 20mg, and the most prescribed doses were 2mg (41%), 10mg (38%) and 5mg (14%).

	Number of patients	Number of administrations	Number of administrations conform to the recommendations
Hemorrhage	7	7	4
Unplanned surgical act	5	5	0
Asymptomatic overdose	4 ≤ INR < 6	3	0
	6 ≤ INR < 10	15	13
	INR ≥ 10	6	1
<b>Total</b>	<b>36</b>	<b>42</b>	<b>18</b>

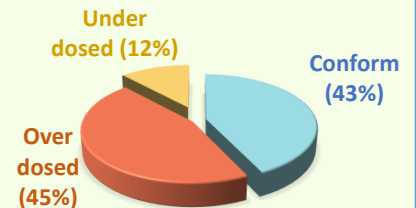


Figure 1: conformity of the prescriptions

Overall, amongst the 24 (57.2%) prescriptions for vitamin K1 which were non-compliant with the recommendations, **19 were for over dose and 5 were for under dose.**

Amongst the 36 studied patients, 6 needed a treatment with PPSB in addition to the vitamin K1 administrations : 4 of them were over dosed in vitamin K1, 1 of them was under dosed and 1 received the recommended posology

### Conclusion:

This study showed an **important rate of non-compliance with the recommendations** regarding the management of patients treated with antivitamin K1 in situation of overdose, bleeding or risk of bleeding in our hospital.

Failure to adhere to the recommended doses of vitamin K1 can cause **difficulties in stabilizing the INR** after resumption of the antivitamin K treatment.

Furthermore, the **prescriber's attention was drawn to the recommendations** through an oral presentation of the study and e-mails. We also reminded them of the existence of a form, included in the prescription software, designed to serve as a point of reference for the prescriber when vitamin K1 is needed.

CONDUITE A TENIR EN CAS DE SURDOSAGE EN AVK (livret des anticoagulants 2014)		
SI SURDOSAGE AUX AVK SANS HEMORRAGIE		
INR mesuré	Mesures correctrices recommandées en fonction de l'INR mesuré et de l'INR cible	
	INR cible 2.5 (fenêtre entre 2 et 3)	INR cible ≥ 3 (fenêtre 2.5-3.5 ou 3-4.5)
INR < 4	# Pas de saut de prise # Pas d'apport en vitamine K	
4 ≤ INR < 6	# Saut d'une prise # Pas d'apport de vitamine K	# Pas de saut de prise # Pas d'apport en vitamine K
6 ≤ INR < 10	# Arrêt du traitement # 1 à 2mg de vitamine K par voie orale (1/2 ampoule buvable forme pédiatrique) (grade A)	# Saut d'une prise # Un avis spécialisé est recommandé(ex cardiologue en cas de prothèse valvulaire mécanique) pour discuter un traitement éventuel par 1 à 2mg de vitamine K par voie orale(1/2 ampoule buvable forme pédiatrique)
INR ≥ 10	# Arrêt du traitement # 5mg de vitamine K par voie orale (1/2 ampoule buvable forme pédiatrique) (grade A)	# Un avis spécialisé sans délai ou une hospitalisation est recommandée
SI SURDOSAGE AUX AVK AVEC HEMORRAGIES GRAVES		
Suspendre le traitement par AVK et administrer 10mg de vitamine K par voie orale ou IV lente (perfusion d'une heure) en association à un CCP(concentré de complexe prothrombinique)		

Figure 2: Prescription form