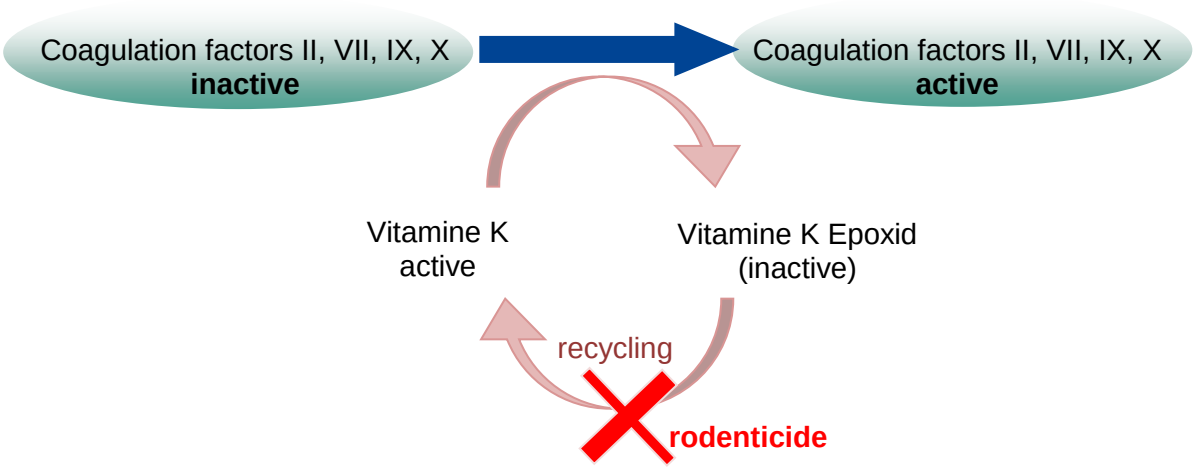
Monitoring of Vitamin K- therapy in patients with rodenticide poisoning

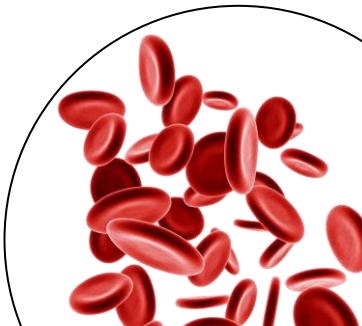
Element COAG+ PT / aPTT

Functional coagulation factors are built under the influence of a vitamin K- dependent enzyme (Vitamin K epoxy reductase). Rodenticides (derivates of cumarin) contain vitamin K-antagonists. After oral ingestion these adversaries of vitamin K are absorbed in the intestine and reach the liver. In the liver they inhibit recycling of already used vitamin K. Therefore, after ingestion of rodenticides too little amounts of vitamin K are present to activate coagulation factors resulting in too low numbers of functional coagulation factors. Within 24h after ingestion of rodenticides, patients therefore may show bleeding disorders.

Factor VII inherits the shortest half life of the coagulation factors; therefore prolongation of prothrombin time (PT) is first apparent (within 24-36 h after ingestion). Activated partial thromboplastin time reacts more slowly and may be prolonged 24-48 (96) h after ingestion of the toxin.



Therapeutically, vitamin K1 is essential to stimulate synthesis of functional coagulation factors in the liver. If ingestion of rodenticides is less than two hours ago, it can be tried to make the patient vomit to remove the toxin from the stomach. Active charcoal further reduces the absorption of rodenticides from the gastrointestinal tract.



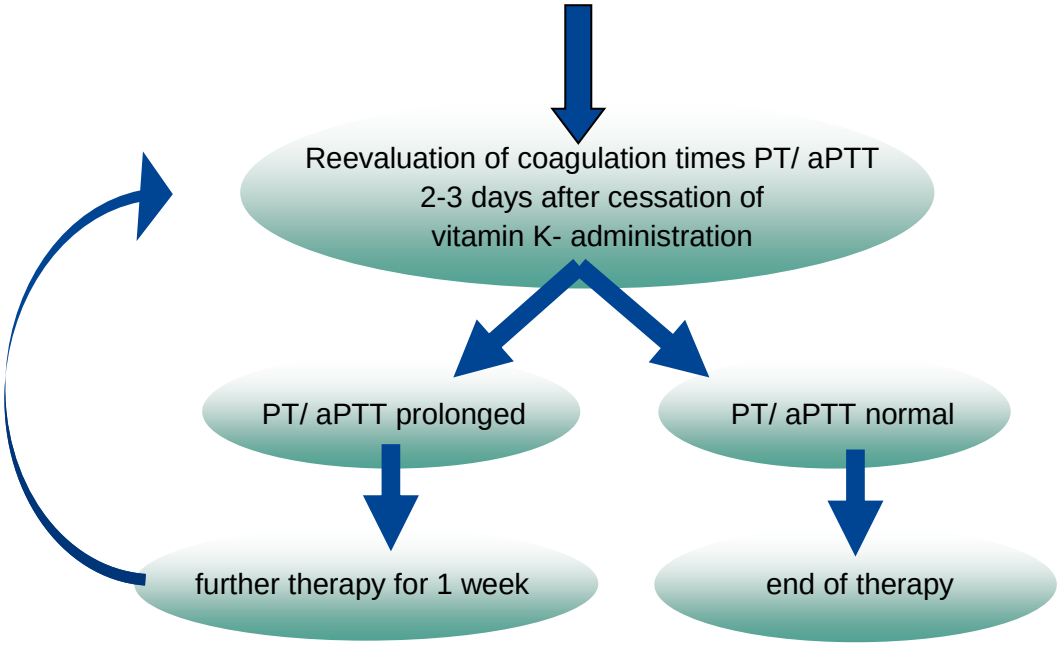
scil animal care company GmbH, August 2021

Vitamin K- therapy and monitoring in patients after rodenticide ingestion

Vitamin K1- administration (phytonadione):

In patients which show hemorrhage:
initial dosage 2.5 – 5 mg/kg p.o.
maintenance 2.5 mg/kg p.o. 2x daily

- Better intestinal absorption after p.o. administration if given with a fatty meal
- Therapy duration up to 6 weeks, depending on the type of rodenticide



Reference:

Plumb´s Veterinary Drug Handbook, 7th Edition, Donald C. Plumb

Blackwell‘s Five Minute Veterinary Consult: Canine and Feline. 5th Edition, Tilley & Smith