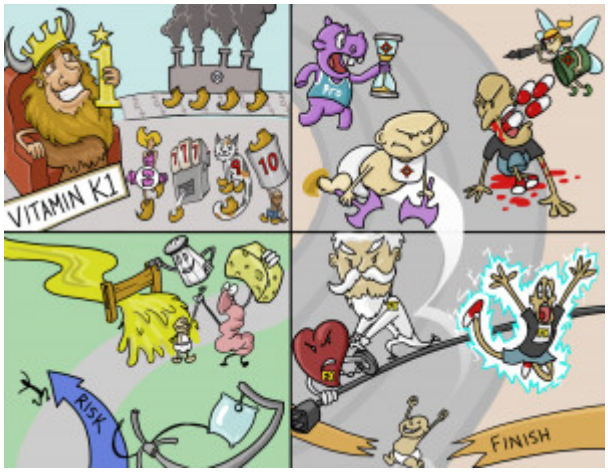
Vitamin K1 (Phytonadione)

Vitamin K1 is an essential component in the synthesis of prothrombin and clotting factors II, VII, IX, and X, which allow the blood to coagulate. When there is an inadequate supply of vitamin K in the body, clotting factors are not readily synthesized, which can lead to spontaneous bleeding. Vitamin K1 is indicated in the treatment of hypoprothrombinemia, warfarin overdose, and prophylaxis of hemorrhage in newborns. Side effects are serious and can include bilirubin-induced brain dysfunction (kernicterus), and hypersensitivity reactions such as shock and cardiac arrest. To prevent a potentially life-threatening hypersensitivity reaction, vitamin K1 should not be given intravenously unless other routes of administration are contraindicated.



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Mechanism

Synthesizes Clotting Factors II, VII, IX, X
Making Clogs at Factory for (2) Tutu, Lucky (7), (9) Lives cat, and (10) Tin
Vitamin K1 is an essential component in the synthesis of clotting factors II (or prothrombin), VII, IX, and X, which allow the blood to coagulate. When there is an inadequate supply of vitamin K in the body, clotting factors are not readily synthesized, which can lead to spontaneous bleeding.

Indications

Hypoprothrombinemia
Hippo-pro with Hourglass
Prothrombin is a precursor to thrombin, which is an element of the clotting cascade that is needed to convert fibrinogen to fibrin. Because prothrombin is necessary for clotting to occur, patients with hypoprothrombinemia are prone to bleeding. In these patients, vitamin K1 is given to increase synthesis of prothrombin.

Newborn Prophylaxis
Newborn with Purple-axes
Babies are born with a vitamin K deficiency. In order to prevent complications such as hemorrhage, newborns are given a single dose of vitamin K1 to increase prothrombin levels and to prevent bleeding.

Bleeding from Warfarin Overdose
Bleeding War-fairy Overdosing
Warfarin is a vitamin K antagonist and can cause bleeding or hemorrhage when the therapeutic dose is exceeded.

Side Effects

Shock
Shocked
When administered intravenously, vitamin K1 can elicit a hypersensitivity reaction, leading to shock and possible death.

Kernicterus
Colonel
Administration of parenteral vitamin K can cause serum bilirubin levels to rise in newborns, especially those born prematurely. Bilirubin is a neurotoxic substance and can cause bilirubin-induced brain dysfunction known as kernicterus.

Cardiac Arrest
Heart being Arrested
Patients who receive vitamin K1 intravenously are at an increased risk of cardiac arrest. To prevent a potentially life-threatening hypersensitivity reaction, vitamin K1 should not be administered intravenously unless absolutely necessary.

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Considerations

Bile Salts required for Intestinal Absorption

Bile-Nile Salt-shaker with Absorbing-sponge at Intestines

Adequate intestinal absorption of vitamin K1 is dependent upon the presence of bile salts.

Increased Risks with IV Administration

Up-arrow Risk at IV-stand

Intravenous administration of vitamin K1 can cause life-threatening hypersensitivity reactions including shock and cardiac arrest. For this reason, vitamin K1 should not be given intravenously unless other routes of administration are contraindicated.

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