

UTILITY OF VITAMIN K IN PATIENTS NOT TAKING WARFARIN WITH ELEVATED INR

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Objectives



- A brief overview of synthetic activity
- Discuss the role of vitamin K in coagulation
- Analyze the significance of vitamin K therapy in liver disease
- Review 2 cases on vitamin K use in cirrhotic patients

Introduction

- ❑ Almost all coagulation factors and inhibitors are synthesized by the liver¹
- ❑ Significant liver dysfunction correlates with impairment of synthetic function of the liver²
- ❑ Prothrombin time (PT) indirectly measures the vitamin K deficiency
- ❑ Non-vitamin K dependent (VKD) clotting factors can prolong PT

Introduction

- Vitamin K activates PT, Factor VII, XI, X, protein C and S¹
- Activation is through γ -carboxyglutamic acid of glutamic acid residues of VKD
- Gut sterilization, warfarin use, and biliary tract disease respond to vitamin K administration³

Coagulopathy in liver disease

- Case 1: KC was 61 y/o M with alcoholic cirrhosis
- Multiple admissions to ICU NPO on CIWA protocol
- INR: Day 1: 1.9, Day 2: 2.2, Day 3: 2.2, Day 3: 2.5
Day 4: 2.8 (1st dose of Vit. K 10mg PO x3d)
Day 5: 2.2, Day 6: AMA

Patient returned 14 d later with INR 2.5

Patient case #2

- ML 58 y/o M with alcoholic cirrhosis
- Multiple ICU admissions
- INR Day 1: 2.0, Day 2: 2.1 (Vit K 10mg PO x3d)
Day 3: 1.9, Day 4: 2.0

Complicated balancing act

- Deep vein thrombosis prophylaxis?
- High levels of von Willebrand factors (vWF) ⁴
- Reduced level of ADMATS 13 (vWF cleaving protein)
- Need to consider DVT prophylaxis for patients with risk factors

References

- 1. Mammen EF. Coagulation abnormalities in liver diseases. *Hematol/Oncol Clin North Am.* 1992. 6:1247-57
- 2. Saja MF, Abdo AA, Sanai FM, Shaikh SA, Gader AG. The coagulopathy of liver disease: does vitamin K help? *Blood Coagul Fibrinolysis.* 2013. 1: 10-7
- 3. Amarapurkar PD, Amarapurkar DN. Management of coagulopathy in patients with decompensated liver cirrhosis. *Int J Hepatol.* 2011. 2011:695470
- 4. Tripodi A, Mannucci PM. The coagulopathy of chronic liver disease. *N Engl J Med.* 2011; 365:147-56