# ACQUIRED VITAMIN K DEFICIENCY IN AN ADULT PATIENT – CHALLENGE OF DIAGNOSIS AND TREATMENT (CASE REPORT)

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Abstract

Vitamin K is an essential component in the body's normal blood-clotting process and plays an important role in maintaining bone health. Most vitamin K is produced by micro-organisms in the intestine, and is stored in the liver. Dietary vitamin K is largely obtained from green leafy vegetables such as spinach, Brussels sprouts, broccoli and cabbage, and some vegetable oils including soybean and rapeseed.

In adults, vitamin K deficiency is uncommon because of the intake of a wide variety of vegetables, the body's ability to recycle vitamin K and adequate gut flora production of vitamin K. The clinical manifestations of vitamin K deficiency are evident only if hypoprothrombinemia is present. The major symptom is bleeding, especially after minor trauma. However, severe bleeding can occur if the condition is not recognized early and treated appropriately.

A 61 year old man presented to our hospital with recurrent epistaxis and hematuria for 2 months. The blood tests performed on admission revealed mild anemia and abnormal coagulation function with Prothrombin time (PT) of 15% (normal range: 70-120%) and activated partial thromboplastin time (APTT) of 53 seconds (normal range: 28-40 sec). There was no family history of bleeding diathesis and he denied taking any medication. Also, his medical past was unremarkable. Direct assays showed severe, isolated deficiency of vitamin K dependent clotting factors (II, VII, IX, X), and mixing studies normalised both the PT and APTT, ruling out a coagulation inhibitor. The coagulopathy responded to intravenous vitamin K administration with the normalization of both PT and APTT. When the treatment was interrupted the INR value became 4.86 and the prothrombin complex coagulation factors serum levels significantly decreased. The remarkably specific lack of vitamin K dependent clotting factors and the vitamin K therapeutic probe strongly suggested a vitamin K deficiency.

Upon further investigation, the endoscopic study with biopsy specimens of the duodenum and the colonoscopy extended into the terminal ileum showed no evidence of pathological changes, ruling out the diagnosis of celiac sprue, Crohn disease or ulcerative colitis. The copro-parasitological test was negative. The stool analysis showed a low pH of 4.9 (normal range: 7.0-7.5), normal fat levels, frequent partial digested and rare undigested cellulose and starch particles. The diagnosis of adult cystic fibrosis was brought to attention, but the available data were insufficient to fulfil the diagnostic criteria.

Based on the available clinical data, the patient was presumptively diagnosed with exocrine pancreatic insufficiency. As the oral medicinal preparations of vitamin K are not available in our country, we started treatment with the same vitamin K but in oral administration concomitantly with Pancreatinum (oral, 40000UI, t.i.d.). The bleeding manifestations remitted and the repeated coagulation status assessment showed a slightly prolonged, but stable, level of INR (between 2 and 3) and a normal APTT.

Making a diagnosis of vitamin K deficiency may be a laborious process. An accurate diagnosis must be made in order to treat appropriately.