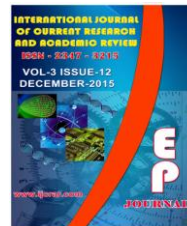




International Journal of Current Research and Academic Review

ISSN: 2347-3215 Volume 3 Number 12 (December-2015) pp. 144-147

www.ijcrar.com



An Adult Case of Vitamin K deficiency without any underlying disease

B. Nejadi^{1*} and M. Mohammadi²

¹Assistant Professor of Hematology and Oncology, Hematology and Oncology Research Center, Tabriz University of Medical Sciences, Tabriz, Iran

²Student of Medical Science, Faculty of Medicine, Tabriz University of Medical Sciences, Tabriz, Iran

*Corresponding author

KEYWORDS

Vitamin K
Deficiency,
Adult,
Warfarin

A B S T R A C T

Vitamin k is one of the essential factors for synthesis of blood coagulation factors II, VII, IX and X and inhibitors such as protein C and S and bone matrix protein. Vitamin k deficiency can occur in all ages but it is common in newborns. Anemia, bruising and bleeding of the gum or nose, heavy menstrual bleeding in women can occur according to vitamin k deficiency. Here we report a case related to vitamin k deficiency who presented with complaints of multiple lower extremity bruising, ecchymosis of the upper limbs, epistaxis, hypermenorrhagic, and she had lack of coagulation factors. She was received FFP at first but it wasn't effective. She was discharged with prescription of Enoxaparin 60mg and with normal lab tests.

Introduction

Vitamin k is a fat soluble vitamin essential for synthesis of blood coagulation factors II, VII, IX and X and inhibitors such as protein C and S and bone matrix protein. Half life of these factors is short and the amounts of the vitamin k that can be stored in the body is small so vitamin k deficiency can be happened in a short time that can cause problems¹. Vitamin k is also an important factor for bone metabolism via gamma-carboxylation of vitamin –dependent proteins such as osteocalcin, matrix Gla protein and proteins.

The insufficiency of gamma glutamic carboxylation impairs the hemostatic function.²

Vitamin k deficiency is common in newborns caused by lack of vitamin k reaching the fetus across the placenta ,the low level vitamin k in breast milk liver insufficiency, malabsorbtion ,low colonic bacterial synthesis ,therapy with antibiotics and coumarin administration.³But vitamin k deficiency can occur in adults due to warfarin therapy⁴, malabsorbtion syndrome,

cholestatic liver disease⁵, complication of chemotherapy in patients with advanced cancer⁶, hyperemesis gravidarum⁷, and low dietary intake of vitamin K⁸, cystic fibrosis, or inflammatory bowel diseases.

Symptoms of vitamin K deficiency include anemia, bruising and bleeding of the gum or nose in both sexes, heavy menstrual bleeding in women, spinal hematoma⁹, intracranial hemorrhage¹⁰.

Here we report a case related to vitamin K deficiency who presented with complaints of multiple lower extremity bruising, ecchymosis of the upper limbs, right lower extremity edema, epistaxis, digestive problems, prolonged PT and PTT and lack of coagulation factors.

Case report

This case report is about 30 year's old female who presented with complaints of multiple lower extremity bruising. The patient's problems began about 2 months before admission to various in four limbs and lateral regions of chest also with similar ecchymosis of the upper limb three weeks before the visit. During this time, the right lower extremity edema was added to the clinical picture and was admitted with exacerbation under clinician's recommendation.

She had headache, epistaxis, dry cough and night sweats occasionally during this period. She was hypermenorrhagic. Patient with digestive problems including heartburn, nausea, constipation, and sometimes abdominal pain that had started a year earlier. Endoscopic procedures showed gastritis and gastric hyperemia and liver function was normal. The patient had bleeding refers to 6 years ago. But no history of hypertension, diabetes and

cardiovascular problems. She didn't use any medication such as warfarin. The patient has no known drug allergies.

In physical examination she was conscious but wasn't ill. Vital signs were stable. Conjunctiva wasn't pale and there were no pathological findings in the head and neck. Abdominal and neurological examinations were normal.

Several ecchymosis were in right lower extremity. Only non-pitting edema of the right lower extremity was detected. During tests performed on the patient before admission Prothrombin Time (PT = 58) and activated Partial Thromboplastin Time (aPTT = 50) were prolonged, and Factor Assay showed the lack of coagulation factors, including factors of 2, 7.9 and 10 (FacII: 25/4%: Fac VII: 12% and Fac IX: 8% / FacX: 20%).Warfarin level was in normal range.

According to above history she was surveyed. She was Iron deficient and anemic, and serum levels of sodium, potassium and other electrolytes were normal.

Patient's CBC (Cell Blood Count) with down hematocrit and RBC (Red Blood Cells), slightly was impaired. All liver enzymes were normal. [Table 1]

| Variable | Reference Range(Adults) | On admission |
|--|-------------------------|--------------|
| HCT(%) | - | 36.8 |
| Activated partial thromboplastin (sec) | 24-40 | 53 |
| Prothrombin time(sec) | 10.8-13.4 | >36.4 |
| International Normalized Ratio | - | 3.94 |

In stool exam, blood cultures and urine cultures, there was no point. The patient's chest radiograph was normal.

Because of prolonged PT and patient active mucosal bleeding, treatment with FFP was started (2U / TDS) and about 10 days continued, the patient's PT and INR improved; but after tapering FFP, symptoms including vaginal bleeding and epistaxis returned again and PT and INR returned to the previous range.

She wasn't hypertensive previously but after treatment with FFP she became hypertensive and captopril 25 mg TDS and amlodipine 5 mg BID was administered. About 1 week later, because of internal bleeding, FFP was discontinued and FEIBA (1500U / daily) was started, In the third day FEIBA increased to 2000U/daily but tests with INR about 5 and PT = 32.5 was still impaired. She was treated about 25 days with different doses of FIBA and FFP, but did not find more improvement. But with beginning of Amp Vit K: 10mg / q6h in the fourth week of treatment after 2 days PT and INR reached the normal range (PT = 13.0 and INR = 1). Despite normal laboratory tests, vaginal bleeding continued; so that 6 unit packed cell was administered. Ultrasound image of the uterus and appendages were done that two hemorrhagic cyst uptake in the right ovary was seen but the left one was normal. Tranexamic acid capsules were administered every 8 hours and after coagulation tests normalization and her bleeding controlled, drug was discontinued after 3 weeks.

Spiral brain CT scan was performed which was unremarkable report. Due to chest pain and heart palpitations echocardiography was performed which had unremarkable report: sinus tachycardia-EF: 60%-MR: 1 +; so that only beta blockers recommended.

Due to swelling of the right lower extremity, venous and arterial ultrasound Doppler of both of them was performed: In the right lower extremity, deep vein thrombosis (sub-acute thrombosis in the distal superficial femoral, popliteal and posterior tibialis) were found. Patient with prescription of Enoxaparin 60 mg and with normal tests was discharged.

The last coagulation tests was shown [Table 2]

| Protein C | Protein S | Fac II | Fac VII | Fac IX | Fac X |
|-----------|-----------|--------|---------|--------|-------|
| 122 | 91% | 110 | 87% | 105 | 16% |

In follow up, 3 months later because of rebleeding Enoxaparin was hold and Vit K dose was increased to 100mg IV daily and FFP was administered but the patient had bleeding when vit K tapered.

Discussion

We report a case with overt bleeding and elevated INR that was controlled with high dose of vitamin K. Warfarin level was normal, liver function, colonoscopy and endoscopy, other tests were unremarkable and did not have malabsorption. But INR /PT and Factor II, VII, IX, X level was abnormal. We don't understand cause of Vit K deficiency in 30 years old female who had good nutrition and did not get any medication. We have similar case later, so in patients with increased level of INR, We should suspected Vit K deficiency. Additional studies for etiology and treatment of these patients should be done.

References:

- 1.H. Gopakumar, R. Sivji, Vitamin K deficiency bleeding presenting as

- impending brain herniation/*J Pediatr Neurosci.* 2010 Jan-Jun; 5(1): 55–58.
- 2.Tsugawa N, Okano T, Serum vitamin K concentration and nutrition]. . *Clin Calcium.* 2007 Nov;17(11):1717-26.
- 3.Mijares ME [Vitamin K: biochemistry, function, and deficiency. Review] *Invest Clin.* 1998 Sep;39(3):213-29
- 4.Takada H, Acquired absolute vitamin K deficiency in a patient undergoing warfarin therapy./ *Am J Emerg Med.* 2014 Jun;32(6):688.e1-2.
- 5.Strople J, Prevalence of subclinical vitamin K deficiency in cholestatic liver disease/*J Pediatr Gastroenterol Nutr.* 2009 Jul;49(1):78-84.
- 6.Harrington DJ, A study of the prevalence of vitamin K deficiency in patients with cancer referred to a hospital palliative care team and its association with abnormal haemostasis/*J Clin Pathol.* 2008 Apr;61(4):537-40.
- 7.Devignes J, -A case of cutaneous and mucous haemorrhage secondary to vitamin K deficiency in hyperemesis gravidarum/*Ann Fr Anesth Reanim.* 2009 Jul-Aug;28(7-8):697-700.
- 8.Cees Vermeer Vitamin K: the effect on health beyond coagulation – an overview/*Food Nutr Res.* 2012; 56: 10.3402/fnr.v56i0.5329
- 9.Ladha A, Spinal haematoma after removal of a thoracic epidural catheter in a patient with coagulopathy resulting from unexpected vitamin K deficiency/*Anaesthesia.* 2013 Aug;68(8):856-60.
- 10.Eguchi T, Postoperative intracranial hemorrhage due to vitamin K deficiency: report of two cases/*No Shinkei Geka.* 1992 Jan; 20(1):73-7.