Case Report

Indian Journal of Emergency Medicine
Volume 4 Number 1, January - March 2018
DOI: http://dx.doi.org/10.21088/ijem.2395.311X.4118.6

Anticoagulant-Related Hemorrhagic Complication: A Rare Presentation

Vikram Shah[1], Kishalay Datta[2], Vaibhav Gulati[3], Jitesh Kumar[4], Sarat Kumar Naidu[5]

Author's Affiliation:
[1]Secondary DNB, PGY 02
[2]Associate Director and Head
[3,4,5]PGY 03, Emergency Medicine, Max Super Specialty Hospital, Shalimar Bagh, Delhi 110088, India.

Corresponding Author:
Vikram Shah,
Secondary DNB, PGY 02, Department of Emergency Medicine, Max Super Specialty Hospital, Shalimar Bagh, Shalimar Bagh, Delhi 110088, India.
E-mail:
drshah_vikram@hotmail.com

Received on 13.11.2017,
Accepted on 24.11.2018

Abstract

An anticoagulant is a drug (blood thinner) that treats, prevents, and reduces the risk of blood clots-breaking off and traveling to vital organs of the body, which can lead to life threatening situations. Anticoagulants are commonly used medications in the prevention and treatment of thromboembolic disease. Vitamin K antagonists (VKAs), primarily warfarin, have been the most frequently used agents for patients requiring chronic anticoagulation. More recently, newer oral anticoagulants including the direct thrombin inhibitors and factor Xa inhibitors have become available. Bleeding is the major complication of anticoagulant and fibrinolytic therapy. The criteria for defining the severity of bleeding vary considerably between studies, accounting in part for the variation in the rates of bleeding reported. The major determinants of vitamin K antagonist (VKA)-induced bleeding are the intensity of the anticoagulant effect, underlying patient characteristics, and the length of therapy. Iliopsoas hematoma is a rare complication that occurs in patients receiving anticoagulant therapy. The clinical manifestation of iliopsoas hematoma is non-specific. It can mimic orthopedic or neurological disorders, including paraesthesia or paresis of the thigh and leg due to compression of the nerve plexus.

Keywords: Anticoagulant; Vitamin K antagonists (VKAs); Coagulopathy; Newer Oral Anticoagulants; Factor Xa Inhibitors.

Introduction

An anticoagulant is a drug (blood thinner) that treats, prevents, and reduces the risk of blood clots-breaking off and traveling to vital organs of the body, which can lead to life threatening situations.

Anticoagulants are commonly used medications in the prevention and treatment of thromboembolic disease. Vitamin K antagonists (VKAs), primarily warfarin, have been the most frequently used agents for patients requiring chronic anticoagulation . More recently, newer oral anticoagulants including the direct thrombin inhibitors and factor Xa inhibitors have become available.

Bleeding is the major complication of anticoagulant and fibrinolytic therapy. The criteria for defining the severity of bleeding vary considerably between studies, accounting in part for the variation in the rates of bleeding reported. The major determinants of vitamin K antagonist (VKA)-induced bleeding are the intensity of the anticoagulant effect, underlying patient characteristics, and the length of therapy.

There is good evidence that VKA therapy, targeted international normalized ratio (INR) of 2.5 (range, 2.0-3.0), is associated with a lower risk of bleeding than therapy targeted at an INR > 3.0.

Iliopsoas hematoma is a rare complication that occurs in patients receiving anticoagulant therapy. The clinical manifestation of iliopsoas hematoma is non-specific. It can mimic orthopedic or neurological disorders, including paraesthesia or paresis of the thigh and leg due to compression of the nerve plexus. Among the many available diagnostic modalities,

© Red Flower Publication Pvt. Ltd.

computed tomography is the most useful radiological method for diagnosis. Treatment approaches for iliopsoas hematoma include conservative therapy, surgical intervention, or transcatheter arterial embolisation. Conservative therapy consists of bed rest, restoration of circulating volume, and drug discontinuation for correcting underlying coagulopathy.

Case Report

Mr. X , a 46 yrs old male presented to Emergency department with c/o sudden onset of weakness and numbness in left limb along with pain abdomen in left iliac fossa and left lumbar region . No H/O Headache, vomiting, giddiness, blurring of vision, fever, altered bowel habits.

He is a follow up case of VSD, Post MVR, operated in 2003, on Tab. Warfarin 6 mg every alternate day.

Primary Survey

Airway Assessment: Patent

Breathing Assessment

Respiratory Rate – 17 CYCLES / MIN

Laboured Breathing – No

SPO2 AT Room AIR – 97 %

Circulation

BP- 130/80 mm Hg

PR-91/MIN

Peripheral Pulsations : All Peripheral Pulsations Present

Disability

PUPILS: B/L NSNRL .

GRBS - 121 mg/dl

GCS – E4V5M6

Cardiac Monitor: Shows Sinus Rhythm.

Secondary Survey

Review of Systems

Heent: No Pallor, Icterus , Cyanosis . Tongue moist

Respiratory System: B/L AEE+

Cardio Vascular System: S1S2 +

Per Abdomen: Mild Diffuse Tenderness Present On Left Lower Abdomen And Groin.

Extremities: Left side lower limb has sensory loss. Power b/15/5

Ample History

Allergies: Not Known

Medications: On Tab Acitrom 1 mg once a day.

Past History: NO H/O DM, HTN, COPD, WEIGHT LOSS IN THE PAST.

Last Meal: Lunch

Investigations and Management in E.D:

All Routine Investigations Were Sent Showed Normal Reports Except:-

1. Hb - 8.7 ,
2. PCV - 26.8 ,
3. PT/INR - 88.2 / 8.19
4. APTT - 93.3

NCCT Head: Normal Study

USG Whole Abdomen: Shows Heterogeneous Mass Of Approx. 7.9 x 5.6 Cm In Left Iliacus muscle

Contrast Enhanced CT Aorotogram: Large Hematoma Is Seen At Left Iliac Psoas Muscle Measuring 5.5 x 6.7x 7.0 Cm, Predominantly Within The Iliacus Muscle

2D Echo: LA,LV Are Enlarged With Mild Global Hypokinesia With Aortic Root Aneurysmal Of 6.4 Cm With Mild AR And MR

Management in E.D: Patient was managed conservatively with i.v fluids, Inj Vitamin K , FFP transfusion and other supportive medications and was shifted to ward for further observation and conservative management.

Discussion

What is Already Known on this Topic

Warfarin was the mainstay of oral anticoagulant therapy until the recent discovery of more precise targets for therapy.

In recent years, several new oral anticoagulants (NOACs) have been introduced and more drugs are currently under development. These drugs have given patients and providers alternatives to heparin and warfarin, mainly for prophylaxis against stroke in patients with atrial fibrillation (AF), prophylaxis/ treatment of venous thromboembolism (VTE) and in treatment of acute coronary syndrome (ACS).

The NOACs fall into two broad categories: the oral direct factor Xa (Factor Xa) inhibitors (rivaroxaban (Xarelto) and apixaban (Eliquis) and the oral direct thrombin inhibitor (dabigatran etexilate (Pradaxa®), the prodrug of dabigatran). Other direct Factor Xa inhibitors being investigated in clinical trials are edoxaban and betrixaban and are pending approval at the moment.

The NOACs differ from warfarin in: Mechanism of action because of direct inhibition of proteins of the coagulation cascade.

- They have more predictable pharmacokinetics leading to fixed and convenient dosing regimens.
- No need for routine monitoring.
- Rapid onset of action.
- No interaction with food.

Spontaneous iliopsoas hematomas are relatively rare and usually occur in patients with coagulopathy either due to hemophilia or therapy with oral anti-vitamin K anticoagulants, antiplatelet agents or LMWH [6,7,8]. Although rare, spontaneous iliopsoas hematoma is important to consider when patients taking oral anti-vitamin K anticoagulants present with lower limb symptoms.

Oral anti-vitamin K anticoagulant therapy is used in various conditions such as atrial fibrillation, post mechanical valve replacement, and treatment and prevention of thromboembolic events . It is used in almost 42% of patients with atrial fibrillation, with recent studies documenting a rise in prescriptions when compared to previous data. Bleeding complications associated with the use of oral anti-vitamin K anticoagulants and/or anti-platelet agents include gastrointestinal and intracranial bleeding, rectus sheath hematomas and retroperitoneal hematomas.

It has been reported that 1-7% of all atients taking anticoagulants will suffer a bleeding complication each year. Studies show that the risk of bleeding increases in direct proportion to INR levels, and is significantly higher when the INR is greater than 3.0.

In our case, the patient receiving Warfarin had an INR of 8.19, which in itself represents quite a high risk of hemorrhagic complications.

Commonly Seen Complications

- Hemorrhage
- Tissue Necrosis
- Calciphylaxis
- Acute Kidney Injury
- Systemic Atheroemboli and Cholesterol Microemboli
- Limb Ischemia, Necrosis, and Gangrene in Patients with HIT and HITTS
- Immune system disorders: hypersensitivity/ allergic reactions (including urticaria and anaphylactic reactions)
- Vascular disorders: vasculitis
- Hepatobiliary disorders: hepatitis, elevated liver enzymes. Cholestatic hepatitis has been associated with concomitant administration of Warfarin sodium and ticlopidine.
- Gastrointestinal disorders: nausea, vomiting, diarrhea, taste perversion, abdominal pain, flatulence, bloating
- Skin disorders: rash, dermatitis (including bullous eruptions), pruritus, alopecia
- Respiratory disorders: tracheal or tracheobronchial calcification
- General disorders: chills

How this Might Change the Clinical Practice

New oral anticoagulants (NOACs) are an alternative for vitamin K antagonists (VKAs) to prevent stroke in patients with non-valvular atrial fibrillation (AF). Unlike VKAs, these anticoagulants do not require routine INR monitoring and possess favorable pharmacological properties. The lack of an effective antidote, their cost, or reservations in patients with kidney disease may explain their slow rate of expansion. Safe and effective use of these new drugs will depend on clinical experience amongst the medical community.

Patient'S Education

In Case of Any of the Symptoms, Patient Should Immediately Report to Hospital.

- Severe bleeding, including heavier than normal menstrual bleeding
- Red or brown urine
- Black or bloody stool
- Severe headache or stomach pain
- Joint pain, discomfort or swelling, especially after an injury
- Vomiting of blood or material that looks like coffee grounds

- Bruising that develops without an injury you remember
- Dizziness or weakness

Conclusion and Take Home Message

Spontaneous Hematoma Formation With Development of Sudden Onset of Left Lower Limb Weakness Is a Rare Presentation.

As a ER Physcian we should keep in mind regarding the typical presentation of such patients including the physical signs like sudden onset of development of lower limb weakness and numbness, NCCT head and USG whole abdomen should be done on priority, as patient is on Tab Acitrom , CVA should be ruled out.

References

1. Kaufman DW, Kelly JP, Rosenberg L, et al. Recent patterns of medication use in the ambulatory adult population of the United States: the Slone Survey. J Am Med Assoc. 2002;287:337–344. [PubMed].
2. Baglin TP, Keeling DM, Watson HG. Guidelines on oral anticoagulation (warfarin): third edition–2005 update. Br Soc Haematol. 2005;132:277–85. [PubMed].
3. Hirsch J, Fuster V, Ansell J, et al. American Heart Association/American College of Cardiology Foundation Guide to Warfarin Therapy. J Am Coll Cardiol. 2003;41:1633–1652. [PubMed].
4. Schulman S. Care of patients receiving long-term anticoagulant therapy. N Engl J Med. 2003;349:675–683. [PubMed].
5. Ansell J, Hirsch J, Hylek E, et al. Pharmacology and management of the vitamin K antagonists: American College of Chest Physicians evidence-based clinical practice guidelines (8th ed.) Chest. 2008;133:160–198. [PubMed].
6. Fihn SD, Callahan CM, Martin DC, et al. The risk for and severity of bleeding complications in elderly patients treated with warfarin. Ann Intern Med. 1996;124:970–979. [PubMed].
7. Palareti G, Leali N, Coccheri S, et al. Bleeding complications of oral anticoagulant treatment: an inception-cohort, prospective collaborative study (ISCOAT) Lancet. 1996;348:423–428. [PubMed].
8. Beyth RJ, Quinn LM, Landefeld CS. Prospective evaluation of an index for predicting the risk of major bleeding in outpatients treated with warfarin. Am J Med. 1998;105:91–99. [PubMed].
9. Hylek EM, Regan S, Go AS, et al. Clinical predictors of prolonged delay in return of the international normalized ratio to within the therapeutic range after excessive anticoagulation with warfarin. Ann Intern Med. 2001;135:393–400. [PubMed].
10. Chu K, Wu SM, Stanley T, et al. A mutation in the propetide of Factor IX leads to warfarin sensitivity by a novel mechanism. J Clin Invest. 1996;98:1619–1625. [PMC free article] [PubMed].
11. Glasheen JJ, Fugit RV, Prochazka AV. The risk of overanticoagulation with antibiotic use in outpatients on stable warfarin regimens. J Gen Intern Med. 2005;20:653–656. [PMC free article] [PubMed].
12. Wittkowsky AK, Devine EB. Frequency and causes of overanticoagulation and underanticoagulation in patients treated with warfarin. Pharmacotherapy. 2004;24:1311–1316. [PubMed]
13. Samsa GP, Matchar DB, Goldstein LB, et al. Quality of anticoagulation management among patients with atrial fibrillation. Arch Intern Med. 2000;160:967–973. [PubMed].
14. Van Leeuwen Y, Rosendaal FR, Cannegieter SC. Prediction of hemorrhagic and thrombotic events in patients with mechanical heart valve prostheses treated with oral anticoagulants. J Thromb Haemost. 2008;6:451–456. [PubMed].
15. Landefeld CS, Beyth RJ. Anticoagulant-related bleeding: clinical epidemiology, prediction, and prevention. Am J Med. 1993;95:315–328. [PubMed].
16. Goldhaber SZ. Pulmonary embolism thrombolysis: a clarion call for international collaboration. J Am Coll Cardiol. 1992;19(2):246–247. [PubMed].
17. Gómez-Outes A, Suárez-Gea ML, Calvo-Rojas G, et al. Discovery of anticoagulant drugs: a historical perspective. Curr Drug Discov Technol. 2012;9(2):83–104. [PubMed].
18. Holy EW, Beer JH. Update on the status of new oral anticoagulants for stroke prevention in patients with atrial fibrillation. Cardiovasc Med. 2013;16:103–114.
19. Heidbuchel H, Verhamme P, Alings M, et al. European Heart Rhythm Association Practical Guide on the use of new oral anticoagulants in patients with non-valvular atrial fibrillation. Europace. 2013;15(5): 625–651. [PubMed].
20. Campbell HA, Roberts WL, Smith WK, Link KP. Studies of the hemorrhagic sweet clover disease. I. The preparation of hemorrhagic concentrates. J Biol Chem. 1940;136:47–55.
21. Ferlund P, Stenflo J, Roepstorff P, Thomsen J. Vitamin K and the biosynthesis of prothrombin. V. Gamma-carboxyglutamic acids, the vitamin K-dependent structures in prothrombin. J Biol Chem. 1975;250(15): 6125–6133. [PubMed].
22. Hirsh J, Dalen JE, Anderson DR, et al. Oral anticoagulants: mechanism of action, clinical effectiveness, and optimal therapeutic range. Chest. 1998;114:445S–469S. [PubMed].

23. Fasco MJ, Hildebrandt EF, Suttie JW. Evidence that warfarin anticoagulant action involves two distinct reductase activities. J Biol Chem. 1982;257(19):11210–11212. [PubMed].
24. Choonara IA, Malia RG, Haynes BP, et al. The relationship between inhibition of vitamin K1 2,3-epoxide reductase and reduction of clotting factor activity with warfarin. Br J Clin Pharmacol. 1988; 25(1):1–7. [PMC free article] [PubMed].
25. Ickx BE, Steib A. Perioperative management of patients receiving vitamin K antagonists. Can J Anaesth. 2006;53(6 Suppl):S113–S122. [PubMed].
26. Klauser W, Dütsch M. Partial management of new oral anticoagulants after total hip or total knee arthroplasty. Musculoskelet Surg. 2013;97(3):189–197. [PMC free article] [PubMed].
27. Connolly SJ, Ezekowitz MD, Yusuf S, et al. Dabigatran versus warfarin in patients with atrial fibrillation. N Engl J Med. 2009;361(12):1139–1151. [PubMed].
28. Da Silva RM. Novel oral anticoagulants in non-valvular atrial fibrillation. Cardiovasc Hematol Agents Med Chem. 2014;12(1):3–8. [PMC free article] [PubMed].
14. Gayle JA, Kaye AD, Kaye AM, Shah R. Anticoagulants: newer ones, mechanisms, and perioperative updates. Anesthesiol Clin. 2010;28(4):667–679. [PubMed].
29. Blech S, Ebner T, Ludwig-Schwellinger E, Stangier J, Roth W. The metabolism and disposition of the oral direct thrombin inhibitor, dabigatran, in humans. Drug Metab Dispos. 2008;36(2):386–399. [PubMed].