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Case Report

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Message from Massage - An Uncommon Complication of Oral Anti Coagulants

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ABSTRACT

Introduction: Individualized Anticoagulants are used for stroke prevention in Atrial Fibrillation (AF) and Venous Thrombo Embolism (VTE) prophylaxis.

Case Report: We had a Forty-Two-year old male patient who was admitted with history of exertional breathing difficult. Also had pain, swelling and tenderness of bilateral anterior thigh region. Local Ultra Sound examination reported hematoma and hemarthrosis. He was on treatment for Type 2 DM, HTN, Paroxysmal AF and Post DVR (2016) and Redo MVR (2018) with Oral Anti Coagulation (OAC) along with other routine medications. These acute symptoms occurred following self-advised bilateral lower limb massage for myalgia. His preliminary investigation revealed Severe Anemia (Hb - 3.8gms/dl) and INR of > 10. Received 3 units of compatible blood transfusions, IV Vitamin K injections and other routine medications. Hb improved to 9.4 gms/dl. 2D Echocardiography although initially showed increased gradients across prosthetic valves improved after blood transfusions. Symptoms gradually stabilized and discharged with stable hemodynamic conditions.

Discussion: Clinicians face increasingly complex decisions relating to appropriate agent, duration of treatment and use in special populations. Newer OACs, like Dabigatran (oral Factor Xa inhibitor) neither requires regular laboratory monitoring nor affected by external factors.

Key Words: International Normalised Ratio (INR), Oral Anti Coagulants (OAC), Stroke prevention, DVT Prophylaxis, Venous Thrombo Embolism (VTE), Mechanical Valve Prosthesis, Non-Valvular Atrial Fibrillation (AF)

INTRODUCTION

Prothrombotic conditions like Venous Thrombo Embolism (VTE), Mechanical Valve Prosthesis, and Non-Valvular Atrial Fibrillation (AF) are complicated by Systemic Thromboembolism, which can be prevented by use of Anticoagulants.[1, 2, 3]

CASE REPORT

We report a case of Forty-Two-year-old Male admitted with exertional dyspnea and bilateral lower limb Pain & Swelling for 15 days. Had myalgia for which he received bilateral lower limb massage from local therapist. Resulted in painful swelling of Bilateral thighs and knee joints. Also associated with recurrent cough and hemoptysis. On admission, clinically he had Pallor (3+), mild pedal edema, tachycardia initially but later became normal (from 140/min to 80/min), hypotension (110/70 mm of Hg), local signs of Inflammation (Discoloration+, Swelling+, Tenderness+ and Knee Joints immobility) and otherwise unremarkable systemic examinations. He was on treatment for Type 2 DM, Systemic HTN and Paroxysmal AF. He underwent DVR (2016) and Redo MVR (2018). He was on OAC with Tab. Warfarin 3 mg /day along with other routine medications. Preliminary blood investigations revealed severe anemia (Hb - 3.8 gms/dl & PCV - 13%), Acute Inflammation (CRP - 61.4, ESR - 89 mm/h & TC - 27120) and increased bleeding tendencies (PT - Test - 400, Control - 14 & INR - > 10) (**Figure 1**). ECG showed Normal Sinus Rhythm with ST depression in Anterolateral leads (**Figure 1**) and 2D Echo reported as Post DVR, Increased Prosthetic Valve Peak & Mean Gradients (MV - 23/8 & AV - 70/33 mm of Hg), No LV RWMA, LVEF 58% and No Clots or Pericardial Effusion (**Figure 2**). Bilateral Lower Limb Venous Doppler Study reported as Large heterogenous collection measuring 6.5 x 4.6 x 20 cm (Transvenous, AP and Vertical) seen in muscular plane as Anterior Thigh Hematoma and Large Knee Joint Effusion (Hemarthosis) with Syno-Patellar Bursal extension (**Figure 3**).

In view of severe anaemia and dyspnoea, patient received

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3 units of compatible blood transfusions and IV Vitamin K supplementation. Also treated with O2, Diuretics, Antibiotic and other supportive measures. Because of non-affordability, other specific investigations were not done. 2D Echocardiography although initially shows increased gradients across prosthetic valves even without obstruction, due to high cardiac output, but later improved after blood transfusions. At discharge, anemia (Hb - 9.4 gms/dl, PCV - 29.4% & TC - 20013) and all other symptoms improved. Discharged with stable hemodynamics. Advised to restart OAC at later date with INR monitoring.

DISCUSSION

Over the past half century, the number of patients receiving mechanical valve replacement was estimated to be 100,000 per annum worldwide.[4] Its biggest drawback is that patients require long-term or permanent use of blood anti-coagulants to prevent the occurrence of thromboembolism.[4] Majority of patients undergoing heart valve replacements are elderly, possess a low educational level and lack of professional knowledge.[4] Lot of controversies exists on selection of OAC, duration of treatment and therapeutic monitoring.[4] With VKA, the risk of Hemorrhage and internal bleeding present. Hemorrhage will be manifested as Hematuria, Hematoma, Intracranial Bleeding and Fall in Hb level. Internal Bleeding manifested as Fatigue, Pallor, Palpitations, Syncope and Dizziness.[5] Also, there will be therapeutic errors, such as inadequate prescription or administration, inappropriate monitoring, absence of treatment resulting from poor adherence, or absence of prescription or administration.[5]

Direct Oral Anticoagulants (DOACs) or New Oral Anticoagulants (NOAC) are approved anticoagulants since 2010.[1] They are more effective, safe and convenient treatment options.[1] The optimal intensity of oral anticoagulant therapy for patients with mechanical heart valves is not known.[3] With the expanding role of DOACs, clinicians are faced with increasingly complex decisions relating to appropriate agent, duration of treatment, and use in special populations.[1] Patient comorbidities must be considered when selecting the most appropriate anticoagulant.[1] Clinicians should incorporate patient preferences, clinical outcomes data, patient characteristics and quality-of-life considerations when recommending an anticoagulant.[1] Cost can play a critical role in this decision, with DOAC affordability for individual patients varying based on medication benefit copayment tiers.[1] Dabigatran - newer and safer Factor Xa Inhibitor has Fixed dose and No routine laboratory monitoring is required.[2] Its Antidote is idarucizumab expensive and not always available, PCC as an alternative.[2] Dabigatran cannot be used in kidney failure and its activity measured in Laboratory by diluted thrombin time (dTT) calibrated for dabigatran, ecarin clotting assay (ECA).[2] It is now recognized that routine monitoring of renal and hepatic function, signs/symptoms of bleeding, and parameters of compliance should be considered for all patients.[1] Laboratory monitoring of warfarin and heparins are well established, while under specific emergency conditions DOACs require specific assays, the availability of which may be limited.[2]

Mechanism in our case: Severe Anaemia → Increased Myocardial Demand & Workload → Increased Myocardial contraction → results in Tachycardia → Increased movement of blood volume and speed across Prosthetic Valve (PV) → Increased PV gradients. So, it is more of functional event.

CONCLUSION

Clinicians should incorporate patient preferences, clinical outcomes data, patient characteristics and quality-of-life considerations when recommending an anticoagulant.[1] Cost can play a critical role in this decision, with DOAC affordability for individual patients varying based on medication benefit copayment tiers.[1] As the future of anticoagulant therapies continues to evolve, DOACs will remain a critical therapy for preventing thrombotic events.[1] But as of now, DOACs are contraindicated after mechanical heart valve. The number of INR tests continues to decrease, as the usage of warfarin declines.[2] The intensity of anticoagulant therapy for patients with prosthetic heart valves is optimal when the INR is between 2.5 and 4.9. To achieve this level of anticoagulation, a target INR of 3.0 to 4.0 is recommended.[3]

LEARNING POINTS

- All increased Prosthetic Valve gradients are not due to its obstruction.
- Regular monitoring of INR is difficult but essential for those who are on Vitamin K Antagonists.
- Recommendation regarding patient education and change in quality of life.
- Should keep in mind VKA associated hemorrhages while evaluating the patient.
- Newer oral Factor Xa inhibitor reduces both bleeding tendencies and monitoring.
- Recommendation for immediate and late management.
- DOAC are not approved for anticoagulation after mechanical heart valve surgery.

LIMITATIONS

- Non affordability of Tests
- Lack of education

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Author statement - Dr. Chandra Shekara Reddy G.B. (First and Corresponding author): All contents were reviewed and agreed with all co-authors in this article completely.

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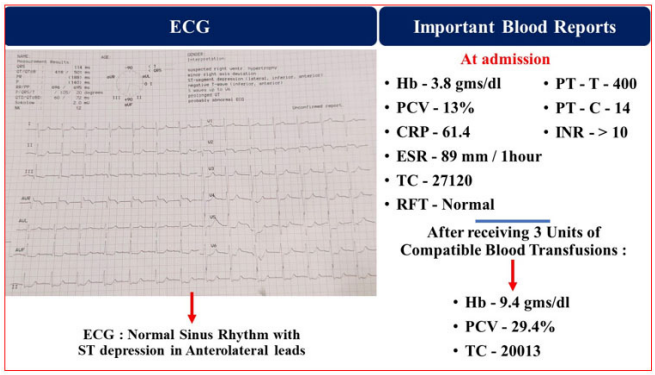

Figure 1: ECG recording and Some of the important blood reports before and after blood transfusion.

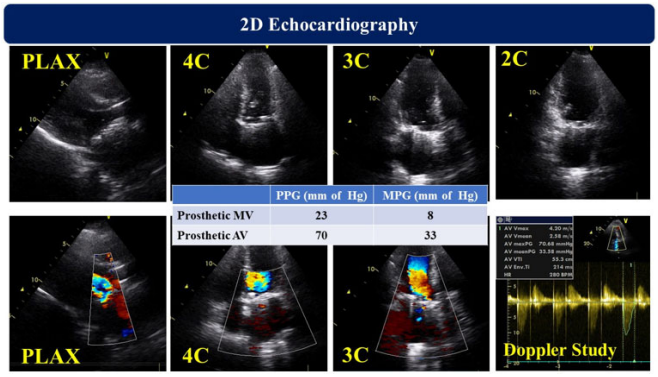

Figure 2: Post DVR 2D Echocardiographic stills.

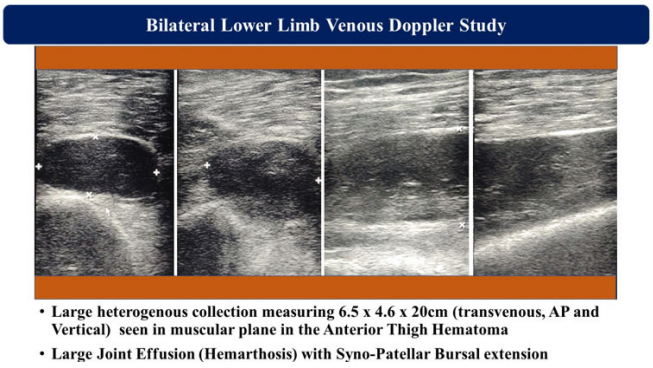

Figure 3: Bilateral Lower Limb Venous Doppler study.