



Failure to Prescribe High Dose Anticoagulants Leading to Thrombosis in Dyskinetic Heart of a Patient Undergone Coronary Artery Stenting: A Case Report

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Background

Non-ST elevation acute coronary syndrome is a type of heart attack that is responsible for a large number of hospital admissions, subsequent mortality and morbidity among millions of patients worldwide. Patients with non-ST myocardial infarction generally have a hypokinetic heart, depending upon the extent and severity of ischemic insult to the myocardium.

Diagnosis of this variant of the acute coronary syndrome is based on clinical findings, ECG, cardiac enzymes working efficiency, biomarker abnormalities (natriuretic peptides, troponin T and I) and cardiac imaging (myocardial scans illustrating perfusion defects).

Regional dyskinesia is a consistent finding in patients with non-ST myocardial infarction who have undergone coronary artery stenting that can be readily determined by echocardiography [1]. Such patients are exposed to a very high risk of developing thrombosis and thus exhibit high mortality rates.

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Case Presentation

A 52 years old male underwent consultation with his general physician in mid of 2012 for progressively increasing exercise intolerance and undue fatigue in daily life. Apart from beta-blockers and ACE inhibitors, the patient was put on a low dose of aspirin (Loprin 75 mg daily). Despite no significant improvement for one year, the patient consulted a cardiologist who advised a Thallium scan to rule out any underlying coronary pathology. The Thallium scan report was normal, and patient continued on the same regimen.

Thallium scan report: Normal stress myocardial perfusion study.

ECG: Normal

Blood glucose 112 (fasting), Hemoglobin 13.9 g/dl, urea 24 mg/dl, creatinine 1.0 mg/dl, Cholesterol 159 mg/dl, Triacylglycerol 157 mg/dl, Troponin T normal, CK-MB normal.

Fluctuating symptoms persisted for many years, and the patient remained well during this time. Patient consulted the cardiologist again, and the same treatment was advised to be continued.

In 2021, the patient suddenly complained of crushing chest pain, radiating to left arm. He was taken to the local hospital where an emergency ECG revealed infarction of the anterior wall, apex, and small region of the inter-ventricular septum.

Angiography findings: Left Anterior Descending artery (LAD) has total proximal occlusion after diagonal branch. Successful PCI to LAD was performed on 07-03-2021

Date of admission: 02-07-2021

Date of discharge: 05-07-2021

Initial echocardiographic findings: Antero-septal hypokinesia, moderate LV dysfunction

Troponin T 10.22 ng/ml, NTpro BNP 470.1 pg/ml, Creatinine 1.1 mg/dl, CK-MB 35 U/L

Medications prescribed: Tab Concor 2.5 mg once daily, Tab Ivatab 5 mg half twice daily, Tab Plavix 75 mg once daily, Tab Loprin 75 mg once daily, tab Ramipril 2.5 mg once daily, Tab Lipiget 20 mg once daily.

The patient was put on Carvedilol 3.125 mg twice daily, Valsartan and Sacubitril 50 mg combination therapy twice daily, and Ivabradine Hydrochloride 2.5 mg twice daily. No thrombolytic therapy was advised at this point, despite echocardiographic findings of dyskinesia of the anterior wall and severely akinetic apex and septum.

The patient remains well but after 10 months, lands in the hospital with episodes of chest discomfort, mild exertional dyspnea and fatigue in the left upper arm. ECG showed no new changes, and another echocardiography was performed which revealed unorganized thrombosis near the apex, probably responsible for the vague symptoms.

Second Echocardiographic findings: Severe dyskinesia of distal septum, lateral & anterior wall. Ejection fraction 40%. Thrombus 1.5 cm × 1.4 cm in apex. Grade 1 diastolic dysfunction

Upon consultation, the cardiologist started low-dose thrombolytic therapy of 2.5 mg Rivaroxaban twice daily.

Patient was not relieved, instead complained of dyspnea on brisk walking, which was not observed previously. The patient then consulted another cardiologist, who prescribed Rivaroxaban to 10 mg twice daily for 3 months, with a subsequent follow up scheduled on March 20th, 2023.

Discussion

Left ventricular dysfunction is a very common outcome after myocardial infarction and is associated with high mortality and morbidity in these patients due to heart failure [2]. In our case presentation, the clinical signs early in the course of the disease were unclear and vague. This posed a hindrance in the diagnosis of ischemic heart disease, particularly the Thallium scan was normal, despite family history, which should have alerted the physicians. The patient in this case suffered an extensive non-ST myocardial infarction, resulting in severe dyskinesia of anterior wall extending to the apex.

The Ejection Fraction (EF) regressed to around 38% to 40% following coronary artery stenting. At this point, apart from cardiotoxic agents (Ivabradine Hydrochloride, Sacubitril) prescribed to patients with regional hypokinesia or akinesia, high dose thrombolytic therapy must have been initiated simultaneously to prevent the development of thrombosis in the affected segments of the heart. Thrombolytic therapy (such as Rivaroxaban 20 mg daily) accelerates the dissolution of acute Pulmonary Thromboembolism (PTE) and should be regarded as a life-saving treatment and considered an adjunct to the treatment of post-stenting non-ST MI. This therapy helps in restoring early normalization of hemodynamic parameters and overall ventricular functions, while simultaneously reducing the mortality [3]. Rivaroxaban works by blocking factor Xa, preventing thrombosis in these high-risk patients [4]. Failure to prescribe high dose thrombolytic therapy imminently results in thrombus formation in hypokinetic/akinetic segments of the myocardium. This case study also emphasizes the need for frequent echocardiographic follow up in patients with akinetic/hypokinetic heart [5].

Conclusion

Patients who have undergone coronary artery stenting must be put on high dose anticoagulants as early as possible to prevent thrombus formation in a hypokinetic heart. Frequent echocardiography must be scheduled in these patients for better prognosis and outcome.

References

1. Kjølner E, Køber L, Jørgensen S, Torp-Pedersen C. Short and long term prognostic importance of regional dyskinesia versus akinesia in acute myocardial infarction. *Heart*. 2002;87:410-414.
2. Pocock SJ, Ariti CA, McMurray JJ, Maggioni A, Køber L, Squire IB, et al. Predicting survival in heart failure: a risk score based on 39 372 patients from 30 studies. *Eur Heart J*. 2013;34:1404-13.
3. Emmerich J, Meyer G, Decousus H, Agnelli G. Role of fibrinolysis and interventional therapy for acute venous thromboembolism. *Thromb Haemost*. 2006;96:251-7.
4. Masotti L, Campanini M. Pharmacology of new oral anticoagulants: Mechanism of action, pharmacokinetics, pharmacodynamics. *Ita J Med*. 2013;7:1-7.
5. Francesca L, Anna M, Olimpia T, Maurizio C, Gianluca D, Antonio M, et al. 945 transient left ventricular thrombosis Takotsubo-related. *Euro Heart J*. 2022;24.