

Different Strategies and Our Approach for Treatment of Mitral Valve Thrombosis; Treatment with Alteplase

Mitral Kapak Trombozu Tedavisinde Farklı Stratejiler ve Kendi Yaklaşımımız; Alteplaz ile Tedavi

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ABSTRACT

Obstructive valve thrombosis after prosthetic valve replacement is a life-threatening problem. Immediate medical or surgical intervention may be life-saving in such clinical cases. In this study we presented a 55-year-old male patient who admitted to our hospital with the complaint of effort dyspnea due to thrombus on single leaflet of mechanical mitral valve. It is still a question whether surgical treatment or thrombolytic therapy should be first choice in this situation. Although serious complications of thrombolytic therapy, we suppose that in high-risk patients with isolated mechanical valve thrombus, successful results can be achieved by applying slow rate infusion of thrombolytic agents.

Key Words: Alteplase; Mechanical Valve Thrombus; Thrombolytic Therapy

ÖZET

Protez kapak replasmanı sonrası obstruktif kapak trombozu hayatı tehdit eden bir problemdir. Bu tür klinik vakalara acil medikal veya cerrahi müdahale gerekmektedir. Bu çalışmada, mekanik mitral kapağın tek leafletinde trombüse bağlı efor dispnesi şikayetiyle hastanemize başvuran 55 yaşında bir erkek hastayı sunduk. Böyle bir durumda cerrahi tedavi veya trombolitik tedavinin birinci seçenek olması gerekip gerekmediği hâlâ tartışmalıdır. Trombolitik tedavinin ciddi komplikasyonlarına rağmen, izole mekanik kapak trombozlu, yüksek riskli hastalarda trombolitik ajanların yavaş infüzyon şeklinde uygulanarak başarılı sonuçlar alınabileceği düşüncesindeyiz.

Anahtar Kelimeler: Alteplaz; Mekanik Kapak Trombozu; Trombolitik Tedavi

Introduction

Obstructive valve thrombosis should be kept in mind in diagnosis of a patient with acute dyspnea or loss of exertion who have a history of prosthetic valve replacement. In case of inadequate anticoagulation, clinical suspicion should be increased(1). Treatment options of this situation include fibrinolytic therapy and emergent surgery. Emergency valve replacement is recommended as a first treatment option in the European Society of Cardiology Valvular Heart Disease Guideline (2007) for patients who have no comorbidities (2).

Here we presented a succesful treatment of a 55-year-old man with thrombus on single leaflet of mechanical mitral valve, with alteplase infusion.

Case Report

A 55-year-old man admitted to our hospital with dyspnea and effort intolerance. He has a previous history of mechanical mitral valve replacement and left atrial thrombectomy. He had a mitral gradient of 26/14 mmHg with normal left ventricular hemodynamics. Because of this reason he underwent flouroscopy. During this procedure diminished motion of single leaflet was observed. Transthoracic echocardiography revealed a thrombus on the mechanical mitral valve. Medical therapy was planned by heart team. Alteplase (50 mg in 100ml 5% dextrose) was infused intravenously over 8 hours. 24 hours after infusion, a control transthoracic echocardiography

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was performed. Normalised motion of both leaflets was seen and mitral gradient decreased to 6/4mmHg. His symptoms were decreased. A hematoma on left lower extremity was developed, for this reason alteplase infusion could not be continued and the patient was heparinized. He was discharged four days after therapy and was fully anticoagulated with warfarin sodium. He remains well in twelve months follow up period.

Discussion

Systemic embolism and intracranial haemorrhage are the most worrisome complications that limit the using of thrombolytic therapy in mitral valve thrombus. These complications were seen about 2.2-33.3% for systemic embolism, 0-3% for cerebral haemorrhage of patients (3-6). Referring to ESC guideline, in 10 mm or bigger valve thrombus, if the patient does not carry a high risk for the operation, surgery is a first line choice (7).

Even if the patient is clinically stable, non-occluding thrombus does not show a benign course. As the studies show, using of thrombolytic therapy in non-occluding mitral valve thrombus does not increase the risk of embolism (7-9).

In a recent manual of Langyel and colleagues, if there is no contraindication, thrombolytic therapy is the first line choice in mitral valve thrombosis independently of the thrombus diameter or valve's functional capacity (10). Surgery is indicated in which thrombolytic therapy is contraindicated or inefficient (Class I, level of evidence B).

At the same manual, for non occluding thrombus if it is less than 5 mm, use unfractionated heparin or oral anticoagulant; if it is 5 mm or bigger, thrombolytic agents are recommended for treatment (Class IIa, level of evidence C). Thrombolytic therapy is contraindicated in presence of a big thrombus in the left atrium (Class III). Careful echocardiographic examination is also important to distinguish thrombus from pannus on obstructed prosthetic valves, since pannus formation is an indication for immediate surgery without prior thrombolytic therapy (11). Similarly, patients with giant left atrium had positive clinical response to surgery (12).

There is lack of information about drug choice, dosage and administration method on the guidelines. There is no standard thrombolytic therapy protocol, and the differences between studies makes it difficult to compare the results of the them. Streptokinase was used in most of these

studies. Using a slow rate infusion protocol of streptokinase is managed by giving 250 000 U in 30 minutes, 100 000 U/h for 72 hours. Fast infusion protocol is achieved by giving 1500000 U in 90 minutes. In our case, streptokinase was administrated with a dosage of 60000-100000 U/h in 15-24 hours. A further thrombolytic agent which we used was urokinase. And a less used one, tissue plasminogen activator (tPA), which is administrated 15 mg bolus followed by with a infusion rate of 85 mg/ 90 min.

We have administered 50 mg alteplase in 8 hours with a slow infusion rate, in our clinic. We had no major cerebrovascular adverse event, only peripheral complication like ecchymosis was observed. However, systemic embolism and cerebral bleeding are serious complications that we must be aware of.

As a conclusion, slow infusion thrombolytic therapy with a careful observation is applicable in high-risk patients with isolated mechanical valve thrombus.

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