

# EMBOLISM IN PATIENTS CARRYING A MECHANICAL HEART VALVE WITHOUT ANTICOAGULANT THERAPY: AN OVEREXTIMATED RISK? A CASE REPORT

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## Background

Mechanical heart-valve replacement is recommended for many patients with severe valvular heart disease. Inadequate anticoagulation can lead to thromboembolic and hemorrhagic complications<sup>1</sup>. In general, the incidence of major bleeding in patients with mechanical valves treated with Warfarin, or its derivatives, is approximately 1,4% patient-years.

For patients with mechanical valves the incidence of major embolism in the absence of anti-thrombotic therapy has been suggested to be approximately 4% patient-years<sup>2</sup>. The fact that a patient with a mechanical valve might complain of a stroke, raises the question as to whether the management of anticoagulation is crucial.

## Objective

We propose a case of a 62-year-old man who in 2002 underwent a valve replacement for aortic stenosis with prosthetic Mira 23 mm prosthesis and ascending aorta replacement with a Dacron prosthesis 28 mm, and was released with a therapy of Acenocoumarol (therapeutic range INR 2.0 to 3.0). In 2011 he had a right parietal lobe brain hemorrhage that was drained with a catheter. In 2012 he had a hematoma in the right parietal lobe with negative arteriography. On that occasion oral anticoagulation was stopped and a therapy with Enoxaparin 4000 1FI sc/day prescribed. In April 2015 he was hospitalized at the "Stroke Unit", Cagliari Brotzu Hospital for "acute cerebral ischemia" (global aphasia and right hemiplegia). INR was 1,05. Echocardiogram didn't show any thrombotic deposition cavity.

## Outpatient bleeding risk index

1. Bleeding risk factors	Points assigned
Age ≥65 years	1
History of stroke	1
History of gastrointestinal bleeding	1
Recent MI or Hct < 30% or SCr > 1.5 mg/dl or Diabetes mellitus	1 point maximum if any is checked
2. Bleeding risk group assigned	
Low	0 = 3%/year
Intermediate	1-2 = 12%/year
High	3-4 = 48%/year

MI myocardial infarction, Hct hematocrit, SCr serum creatinine Adapted from Am J Med 1998;105:91-99

## Estimated incidence rates of valve thrombosis and major and total embolisms: effect of antithrombotic treatment

Anticoagulation	Incidence rates per 100 patient-years		
	Valve thrombosis	Major embolism	Total embolism <sup>a</sup>
None	1.8	4.0	8.6
Antiplatelet	1.6	2.2	8.2
Dipyridamole	4.1	5.4	11.2
Aspirin <sup>b</sup>	1.0	1.4	7.5
Warfarin	0.2	1.0	1.8
Warfarin and antiplatelet	0.1	1.7	3.2

<sup>a</sup> Total embolism includes all reported incidences of valve thrombosis, major embolism, and minor embolism.

<sup>b</sup> Aspirin alone or in combination with dipyridamole or pentoxifylline.

Adapted from Circulation 1994;89:635-641

## Conclusions

Patients with mechanical valves often require temporary interruption of VKA therapy for clinical or surgical reasons. The risk of thromboembolism during short-term interruption of anticoagulation is not well known. Mathematical modeling estimates suggest that the daily risk of thrombosis in patients with mechanical heart valves is approximately 0,046% per day<sup>2</sup>.

Our patient had an ischemic attack after 3 years without anticoagulation despite the guidelines affirm the absolute need to re-establish as soon as possible - normally between 2 days and 3 months - anticoagulant therapy in patients with mechanical heart valve prostheses after intracranial hemorrhage<sup>3</sup>.

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