

EuroValve
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How to manage anticoagulant therapy in infective endocarditis

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Faculty disclosure

Dr Pilar Tornos

I have no financial relationships to disclose.

A panoramic view of the Barcelona skyline, featuring the Sagrada Família, the Guggenheim Museum, and numerous sailboats in the harbor.

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How to manage anticoagulant therapy in infective endocarditis

- Role of antiplatelet drugs
 - In the treatment of IE
 - Previous use and IE outcome
 - In IE prophylaxis?
- Role of anticoagulants



AAS may:

- Reduce bacterial adherence (*Farber, 1992*)
- Reduce vegetation growth and bacterial proliferation (*Nicolau 1993*)
- Attenuate microbial virulence factors (*Kupferwasser, 2003*)



A randomized trial of aspirin on the risk of embolic events in patients with infective endocarditis

Chan et al. JACC, 2003

Randomized, double-blinded, placebo controlled
325 mg AAS

115 pts	60 AAS	Embolism	28.3%
	55 no		20%
			ns



Impact of prior antiplatelet therapy o risk of embolism in IE

Anavekar et al. CID, 2007

Retrospective cohort 1980-1998

- Pts on previous antiplatelet drugs (more than 6 w)
- Pts without

End points: embolic events, mortality

600 pts, 125 on antiplatelet drugs

147 symptomatic embolic events

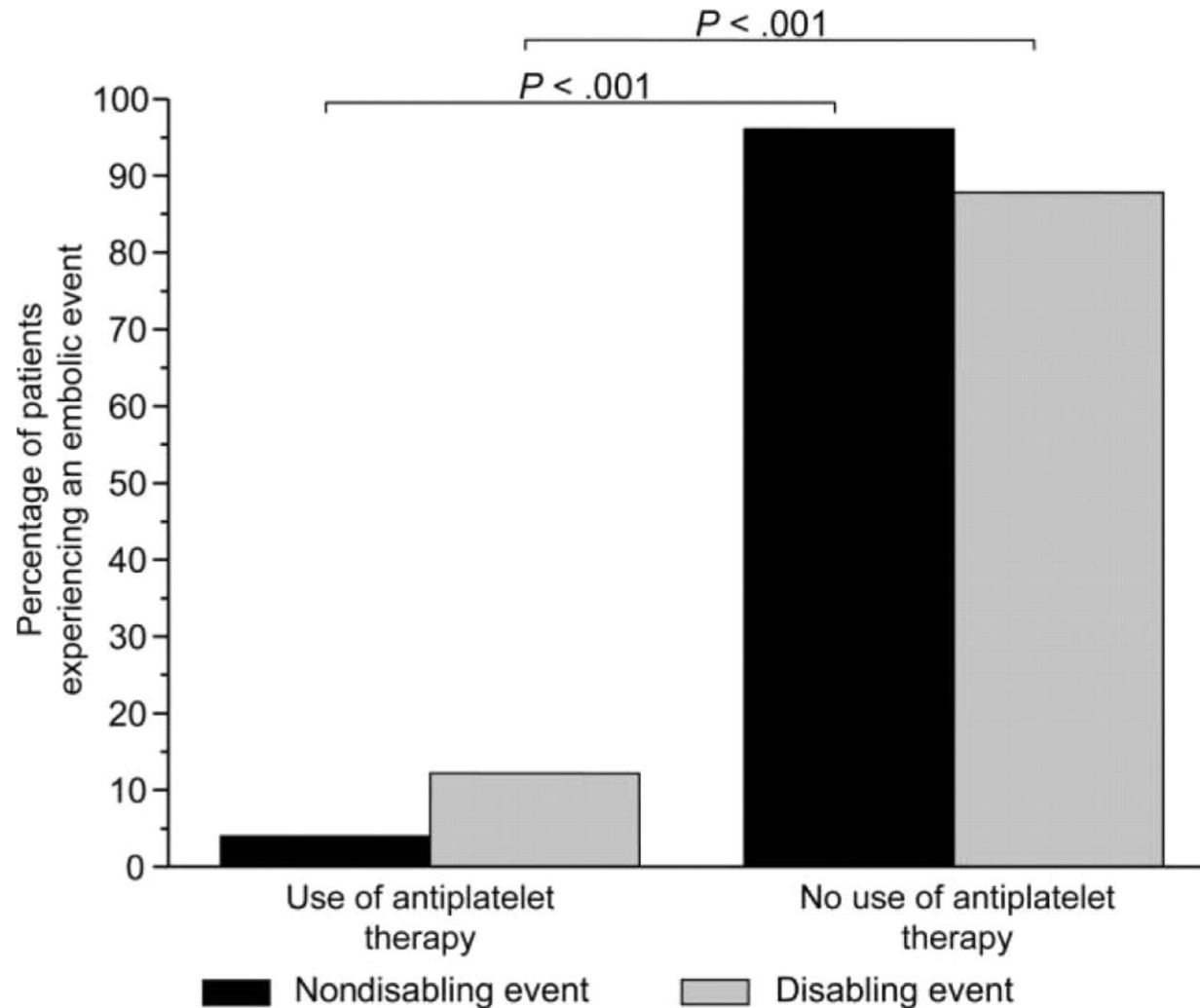
AP 12%

No AP 27.8%

$p < 0.001$

(odds of experiencing embolism 64% less in pts on AP)

Percentage of patients who experienced either nondisabling or disabling symptomatic embolic events.



Nandan S. Anavekar et al. Clin Infect Dis. 2007;44:1180-1186



Impact of prior aspirin therapy on clinical manifestations of cardiovascular implantable electric device infections

Habib et al. Europace, 2012

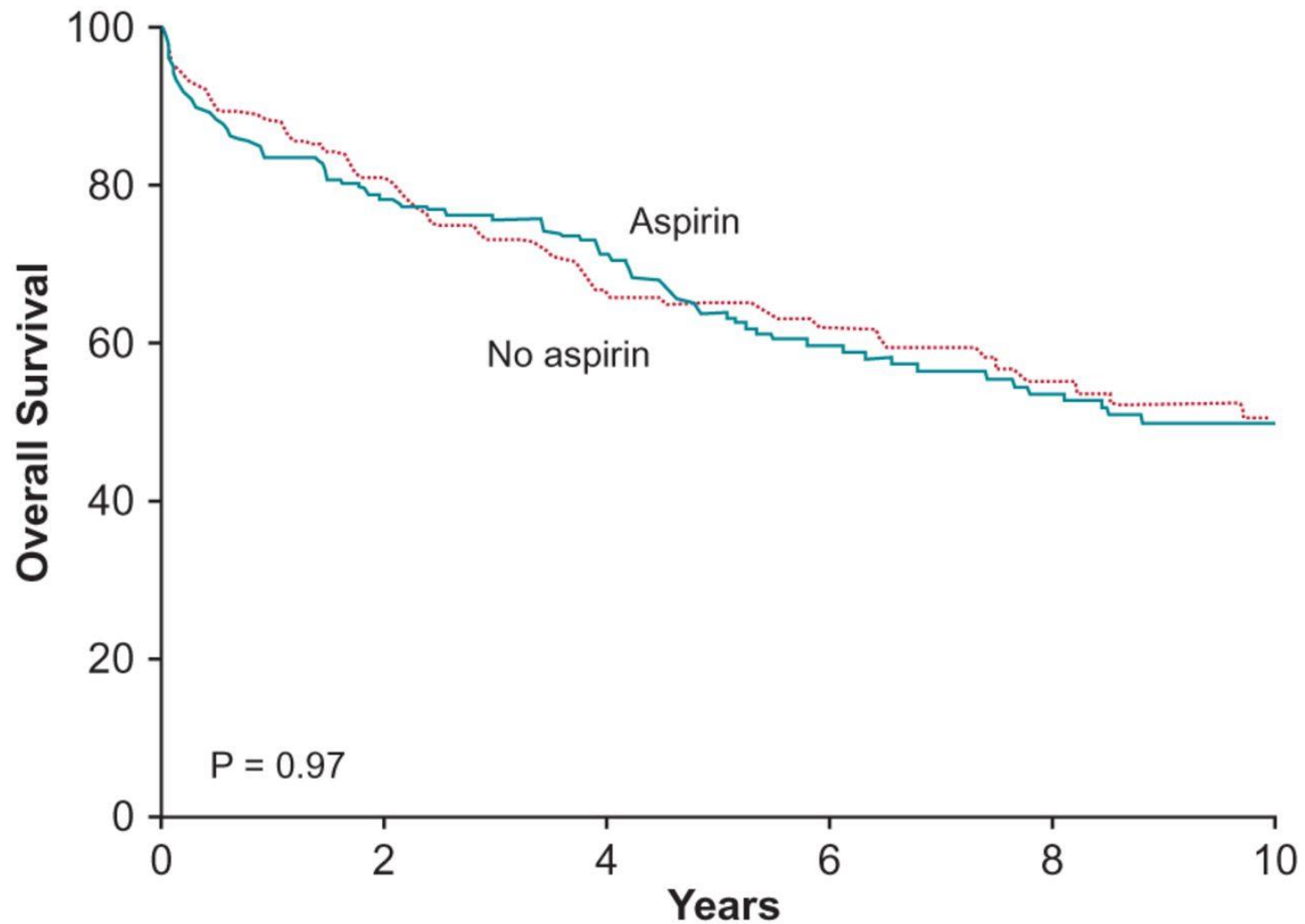
Retrospective cohort (1991-2008):

- 415 CIED infections
- 178 (45%) had received AAS prior to CIED

AAS

- Less systemic manifestations
- Less leucocytosis
- Less vegetations
- No impact on prognosis

Overall survival for patients with cardiovascular implantable electronic device infection with and without prior aspirin therapy.



Ammar Habib et al. *Europace* 2013;15:227-235



Effect of long term aspirine on embolic events in infective endocarditis

Chan et al. CID, 2008

Compared 84 pts from the multicenter aspirine trial in IE that were on previous AAS treatment with 55 pts from the placebo arm of the same trial

AAS treatment had no impact on embolism

Trend towards excess bleeding ($p=0.065$)



The relationship between cerebrovascular complications and previously established use of antiplatelet therapy in left sided infective endocarditis

Snygg Martin et al Scand J Infect dis 2011

Prospective

866 patients with IE

157 (23%) on antiplatelet drugs

Vegetation lenght smaller in the AP group

CVA: 23% vs 25%: ns



Prophylaxis of experimental endocarditis with antiplatelet and antithrombin agents: a role for long-term prevention of infective endocarditis in humans

Veloso et al. JID, 2015

Rabbit model of experimental IE

2 days before inoculation of *S gordonii* / *S aureus*:

- AAS, ticlopidine, eptifabide, abciximab
- Dabigatran, acenocumarol

AAS+ticlopidine protected against *S gordonii*/s aureus IE

Dabigatran protected against *S aureus* IE



ANTICOAGULANTS in IE

Scarce experimental data

Early experience with Penicillin+heparin increased CV hemorrhage (*Priest et al NEJM 1946*)

CVA more frequent when AC were discontinued (*Wilson et al 1978*)

CVA more frequent in anticoagulated pts (*Delahaye et al Eur H J 1990*)

Infection+AB may prolong INR ?

Role of microbleeds?

Empirical data do not support the initiation of AC for IE management

Problem: Ongoing anticoagulation at the time of diagnosis



Infective endocarditis due to *Staphylococcus aureus*: deleterious effect of anticoagulant therapy.

Tornos et al. Arch Intern Med, 1999

56 patients with *S aureus* IE

35 native IE

21 prosthetic valve IE (90% on anticoagulants)

Mortality: 71% PVE, 37% NVE

Death due to neurologic complication: 73% in PVE, 0 in NVE



Warfarin therapy and incidence of cerebrovascular complications in left sided native valve endocarditis

Snygg-Martin et al Scand J Clin Microb Infect Dis 2010

Prospective cohort: 587 pts with native IE, 48 (8%) on warfarin

Cerebrovascular complications 144 (25%)

Predictors: *S aureus*, vegetation size

Less frequent in pts on warfarin



Neurological complications of infective endocarditis: risk factors, outcome, and impact of cardiac surgery: a multicenter observational study

Garcia Cabrera et al. Circulation, 2013

Retrospective analysis of 1345 IE, 340 (25%) neurological complications

- 14% ischemic events

- 6% encephalopathy-meningitis

- 4% hemorrhages

- 1% brain abscess

Risk factors

- Vegetation > 3cm

- S aureus*

- Mitral valve involvement

- ANTICOAGULANT TREATMENT



The role of AAS in the prevention and/or management of IE needs to be defined.

Anticoagulants should not be used as a treatment for IE. In pts already on OA it seems safe to maintain OA. However in very septic pts with *S aureus* IE discontinuing OA for a few days during the septic phase can be considered.



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