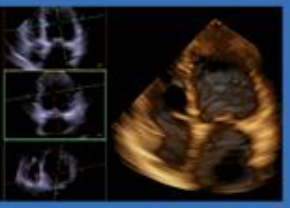

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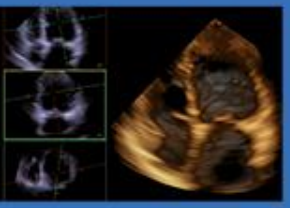
When to pursue rhythm control?

Nina Ajmone Marsan
MD, PhD, FESC
Leiden University Medical Center
The Netherlands



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Faculty disclosure

Nina Ajmone Marsan

I disclose the following financial relationships:

Advisory board of Philips Ultrasound
Paid speaker for Philips, GE

www.eurovalvecongress.com

When to pursue rhythm control?

- **How to predict and prevent development of AF? Both before and after surgery for VHD**
- **Once episodes of AF have occurred, when and how should we pursue rhythm control?**
- **Is there a clinical/prognostic impact?**

Mitral stenosis

- **30-40% of symptomatic pts develop AF**
- **Protection of SR is important: reduce risk of tromboembolism, mantain adequate cardiac output and exercise capacity, and reduce symptoms**
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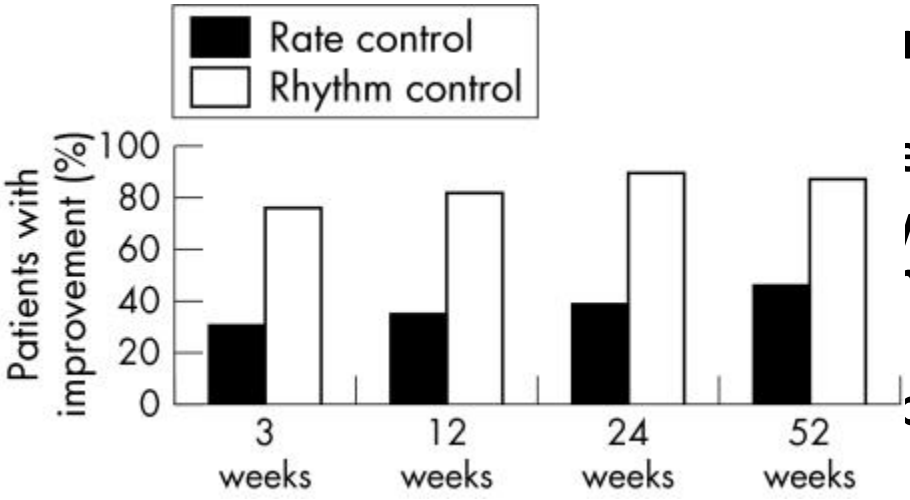
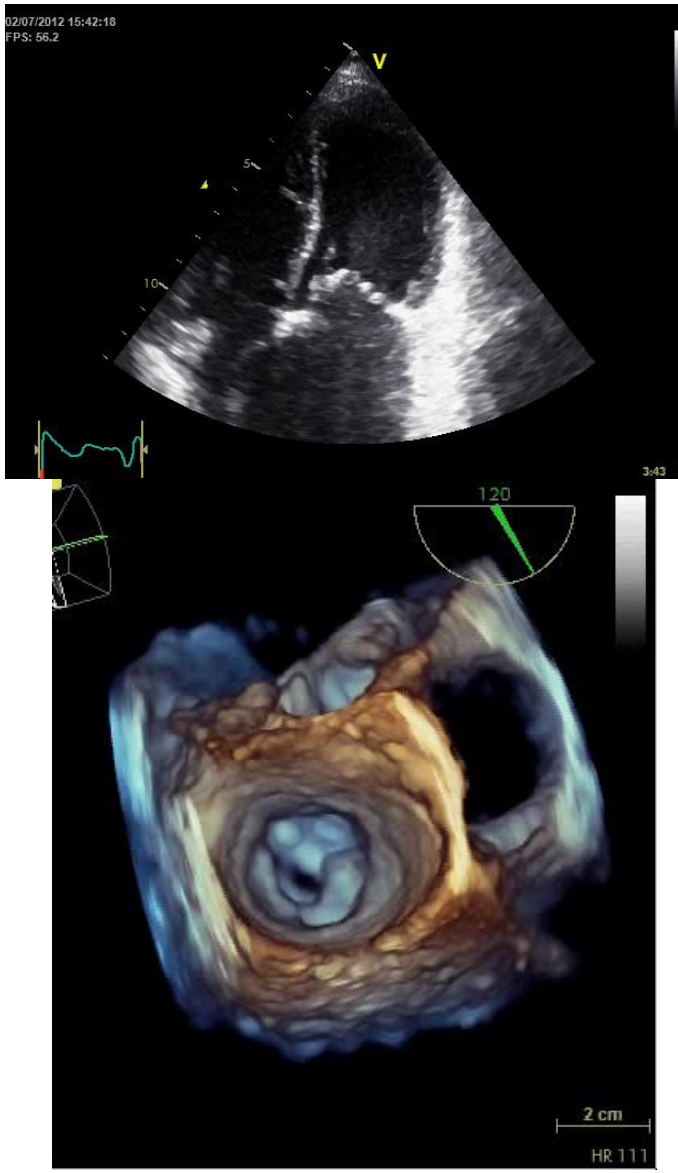
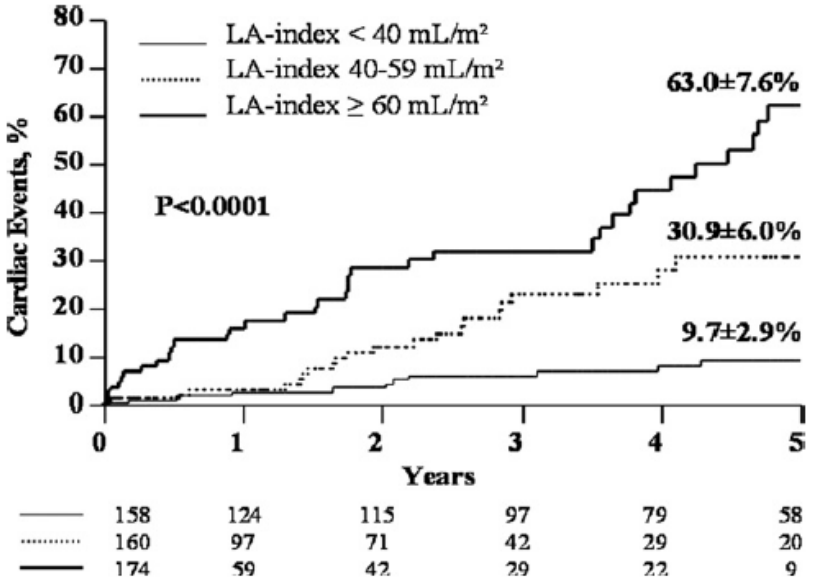


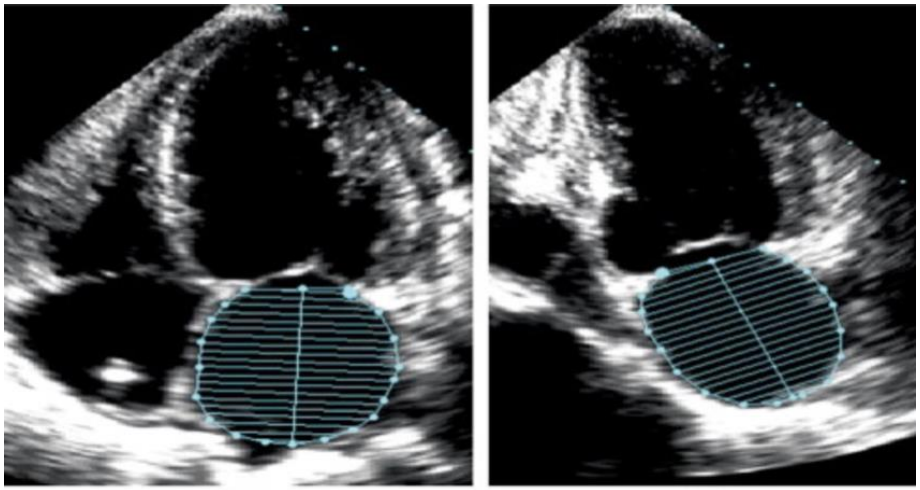


1) Erbay et al, IJC 2005, 2) Krasuski et al, Am J Cardiol 2004

Organic Mitral Regurgitation

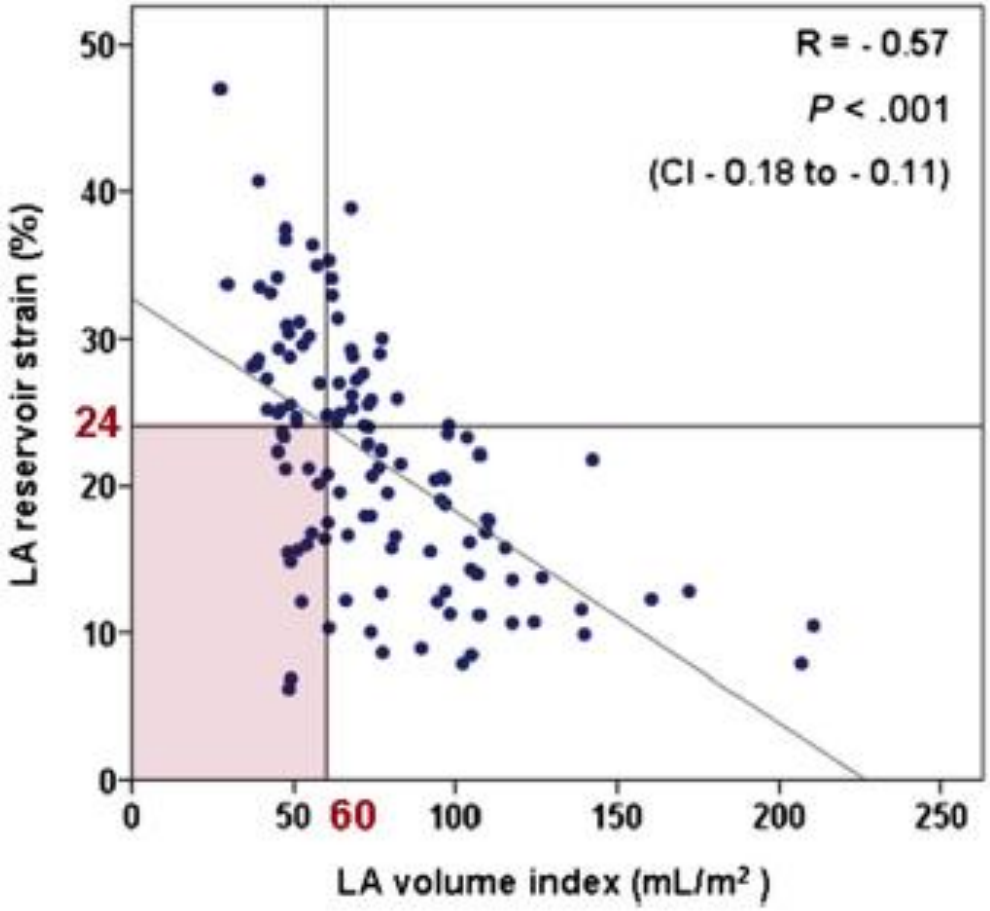


LA Volume

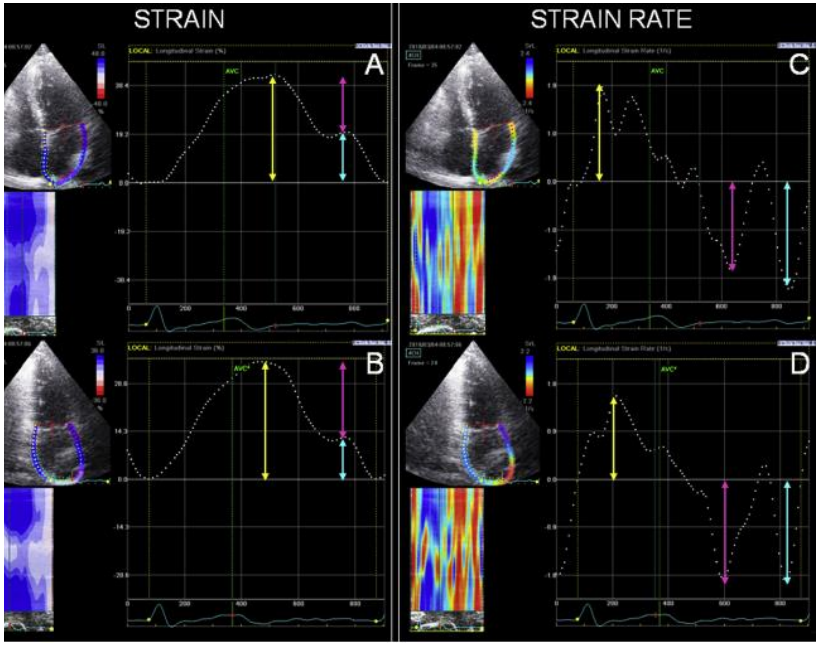


Le Tourneau et al, JACC 2010

Organic Mitral Regurgitation



LA reservoir strain



Debonnaire et al JASE 2013

Atrial Functional MR

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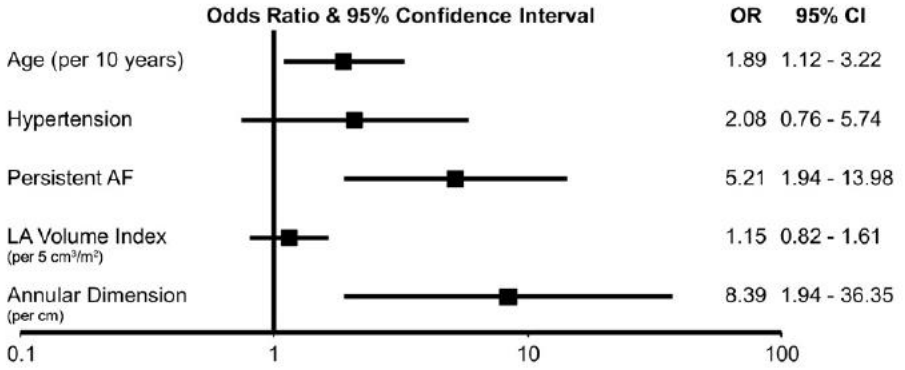
ISSN 0735-1097/$36.0
doi:10.1016/j.jacc.2011.06.03

Evidence of Atrial Functional Mitral Regurgitation Due to Atrial Fibrillation

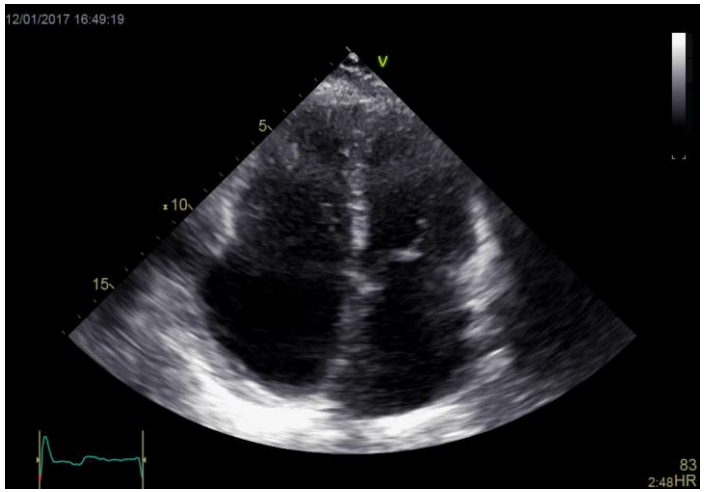
Reversal With Arrhythmia Control

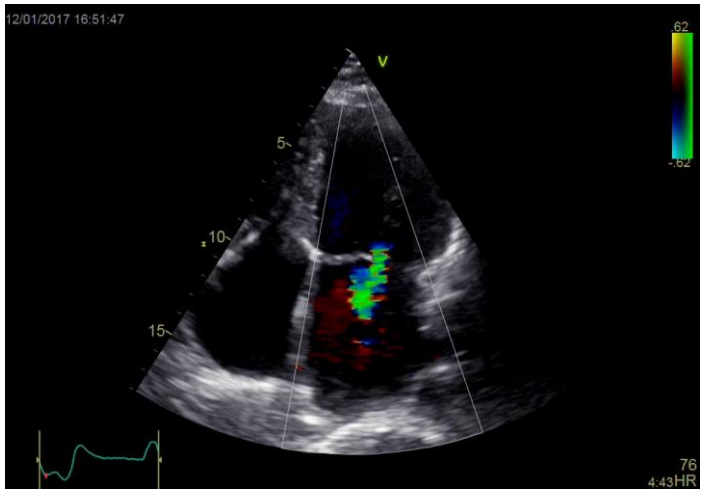
Zachary M. Gertz, MD,* Amresh Raina, MD,* Laszlo Saghy, MD,† Erica S. Zado, PA-C,*
David J. Callans, MD,* Francis E. Marchlinski, MD,* Martin G. Keane, MD,* Frank E. Silvestry, MD*

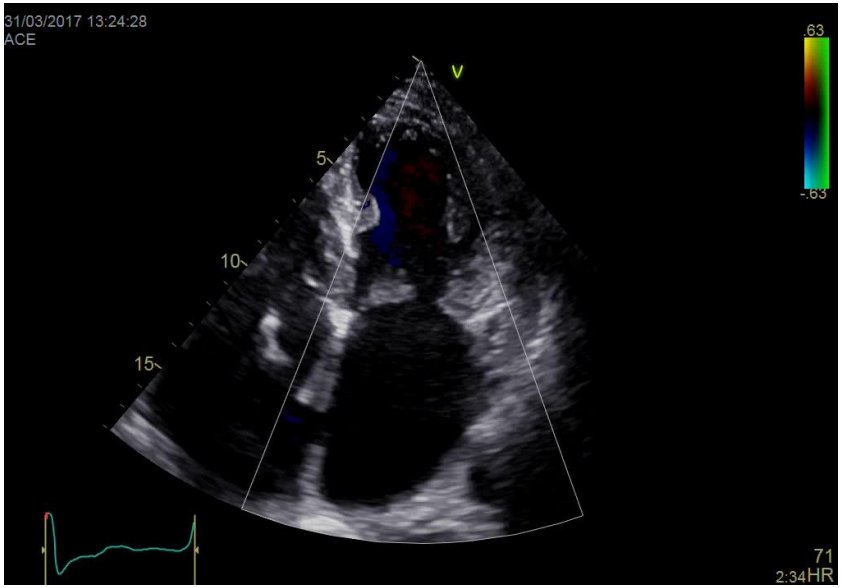
Philadelphia, Pennsylvania; and Szeged, Hungary



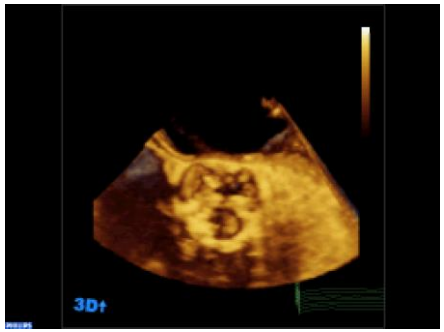
Atrial Functional MR







Aortic stenosis



- **AF in 30-40% of severe AS patients due to pressure overload of both LV and LA, presence of LVH, myocardial fibrosis and stiffness (diast dysfunction)**

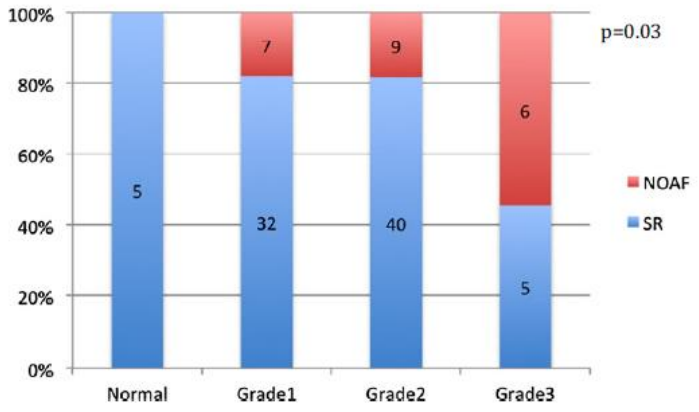
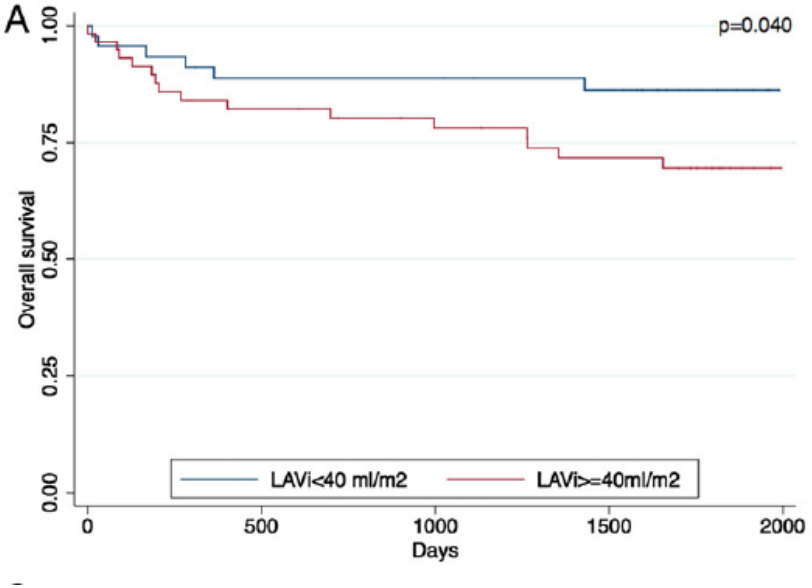


Fig. 1. Association of preoperative diastolic function with development of new-onset AF.

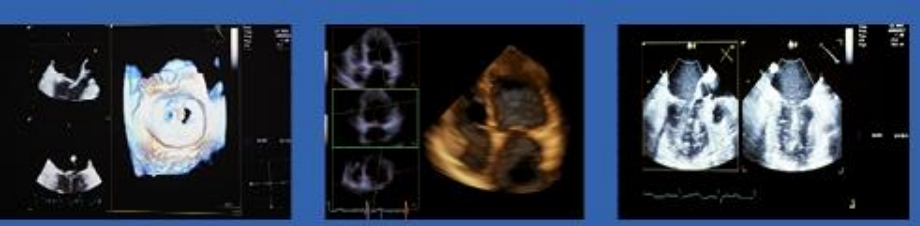


Dahl et al, HIJ Heart and Vessels 2014

Aortic Stenosis

- **Data form the simvastatin and ezetimibe in aortic stenosis study (SEAS):**
  - **9% AF in asymptomatic pts with moderate AS**
  - **Longstanding AF in particular is associated with higher incidence of heart failure and stroke**

Greve et al, Int J Cardiol 2013



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Arrhythmia Burden in Elderly Patients With Severe Aortic Stenosis as Determined by Continuous Electrocardiographic Recording

Toward a Better Understanding of Arrhythmic Events After Transcatheter Aortic Valve Replacement

Marina Urena, MD; Salim Hayek, MD; Asim N. Cheema, MD; Vicenç Serra, MD; Ignacio J. Amat-Santos, MD; Luis Nombela-Franco, MD; Henrique B. Ribeiro, MD; Ricardo Allende, MD; Jean-Michel Paradis, MD; Eric Dumont, MD; Vinod H. Thourani, MD; Vasilis Babaliaros, MD; Jaume Francisco Pascual, MD; Carlos Cortés, MD; Bruno García del Blanco, MD; François Philippon, MD; Stamatios Lerakis, MD; Josep Rodés-Cabau, MD

24 hour ECG monitoring showed 16% new diagnosis of AF (mainly in pts with lower LVEF and higher CHADS-VASc score), associated with 18-fold higher incidence of cerebrovascular events (because of lack of oral anticoagulation therapy) and accounting for 1/3 of AF postTAVR (therefore probably not related to TAVR itself)

New onset AF (NOAF) after TAVR

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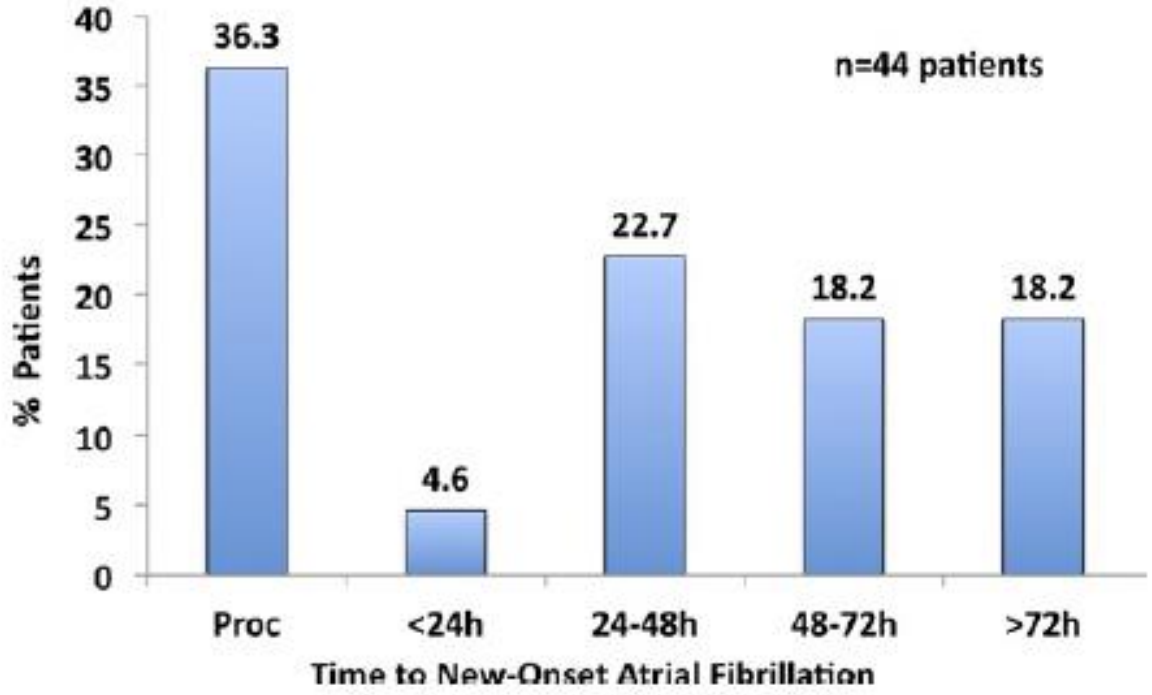


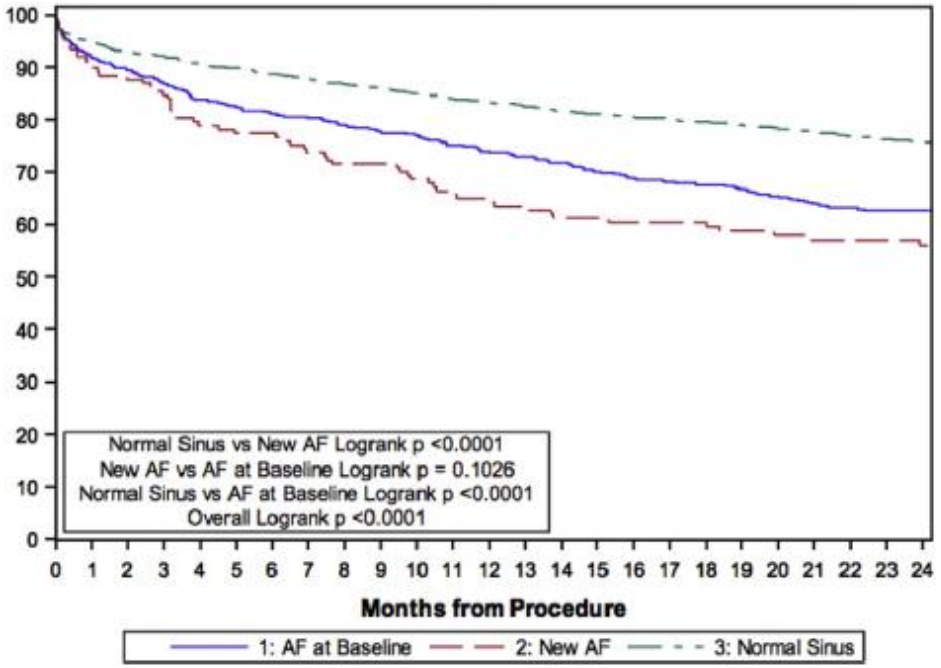
AVR

d in

Amat-Santos et al JACC 2012
Tarantini et al, JACC Interventions 2016

New onset AF (NOAF) after TAVR

- **Difference in association with outcome: 30 days and long-term incidence of stroke according to the initiation or not of oral anticoagulation and the different regimens**
- **Association with all-cause and CV mortality (mainly due to HF events), but also bleeding events**
- **Association with age, LA dimension and non-TF approach**

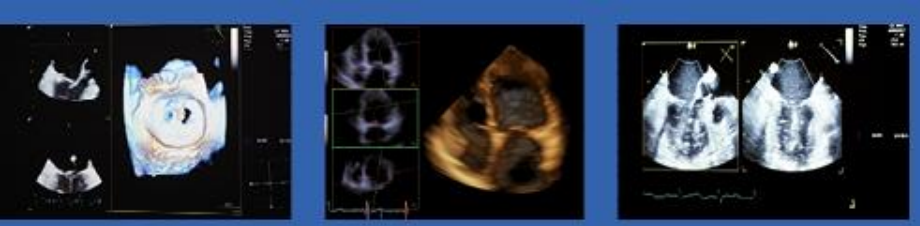


Tarantini et al, JACC Interventions 2016

AF after Cardiac Surgery

- **30% of patients undergoing cardiac surgery present sustained or recurrent AF (50% in CABG + valvular operation)**
- **Post–operative AF is associated with stroke, heart failure, infections and prolonged hospital stay duration , higher risk for readmission and death and overall increase of costs**

Echahidi et al, JACC 2009
Mathew et al, JAMA 2004



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AF after Cardiac Surgery

The NEW ENGLAND JOURNAL of MEDICINE

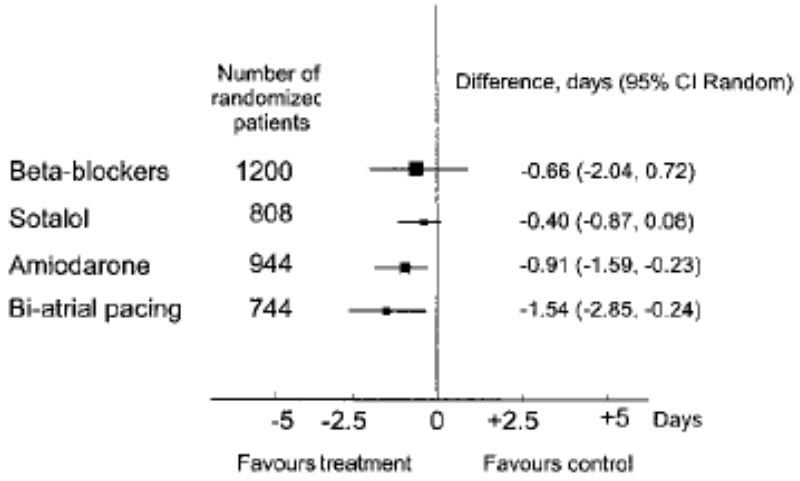
ESTABLISHED IN 1812 MAY 19, 2016 VOL. 374 NO. 20

Rate Control versus Rhythm Control for Atrial Fibrillation after Cardiac Surgery

A.M. Gillinov, E. Bagiella, A.J. Moskowitz, J.M. Raiten, M.A. Groh, M.E. Bowdish, G. Ailawadi, K.A. Kirkwood, L.P. Perrault, M.K. Parides, R.L. Smith II, J.A. Kern, G. Dussault, A.E. Hackmann, N.O. Jeffries, M.A. Miller, W.C. Taddei-Peters, E.A. Rose, R.D. Weisel, D.L. Williams, R.F. Mangusan, M. Argenziano, E.G. Moquete, K.L. O'Sullivan, M. Pellerin, K.J. Shah, J.S. Gammie, M.L. Mayer, P. Voisine, A.C. Gelijns, P.T. O'Gara, and M.J. Mack, for the CTSN*

AF after Cardiac Surgery

- **Current guidelines from the American Heart Association/American College of Cardiology/Heart Rhythm Society recommend achieving rate control with beta-blockers or non-dihydropyridine calcium-channel blockers**
- **Amiodarone and sotalol can be considered as prophylaxis for NOAF (1)**
- **A systematic review by Marik and Fromm showed that periprocedural administration of corticosteroids the development of NOAF by more than 50% (inflammation is proarrhythmic)**



(1) Crystal et al, Circulation 2002

Contents lists available at SciVerse ScienceDirect

International Journal of Cardiology

journal homepage: www.elsevier.com/locate/ijcard

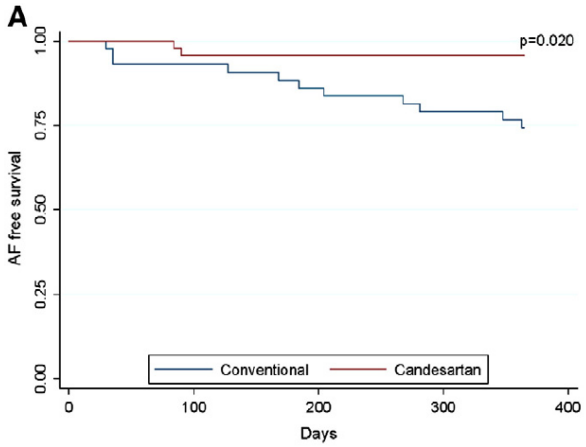
Prevention of atrial fibrillation in patients with aortic valve stenosis with candesartan treatment after aortic valve replacement

Jordi S. Dahl [a,*], Lars Videbæk [a], Mikael K. Poulsen [a], Patricia A. Pellikka [b], Karsten Veien [a], Lars Ib Andersen [c], Torben Haghfelt [a], Jacob E. Møller [d]

[a] Department of Cardiology, Odense University Hospital, Denmark
[b] Division of Cardiovascular Diseases, Mayo Clinic Rochester, USA
[c] Department of Thoracic Surgery, Odense University Hospital, Denmark

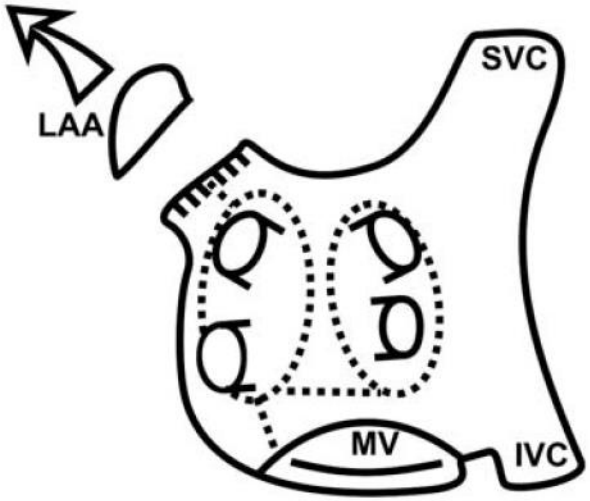
Inhibition of RAAS has been associated with reduced risk of AF due to reduction of pressure overload and atrial strech, LVH, myocardial fibrosis, direct ion-chanel modulation

Also in this study, LV and LA remodeling were signs related with development of post-operative AF

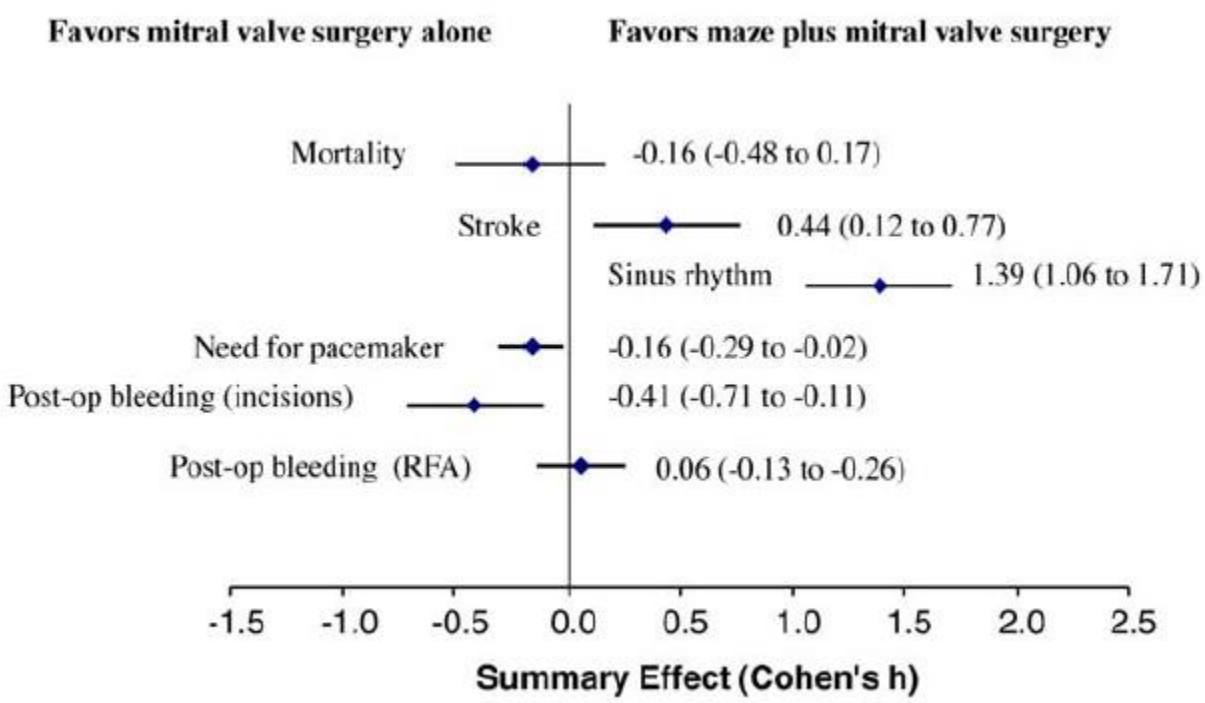


Surgical treatment of AF

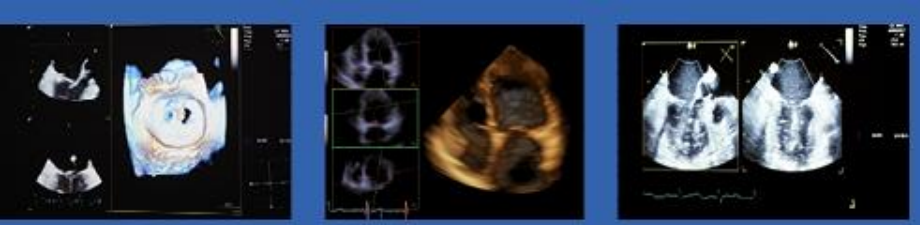
- **COX-MAZE III procedure (cryo-ablation, cut and sew..)**
- **60% of pts undergoing cardiac surgery have AF left untreated**
- **Inconsistent results, better during MV surgery, difference in lesions and energy**
- **The SWEDMAF had increased risk of perioperative complications (Blomstrom-Lundqvist et al, Eur H J 2007)**



Surgical treatment of AF



Reston et al, EJCTS 2005



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Surgical treatment of AF

European Heart Journal (2012) **33**, 2644–2652
doi:10.1093/eurheartj/ehs290

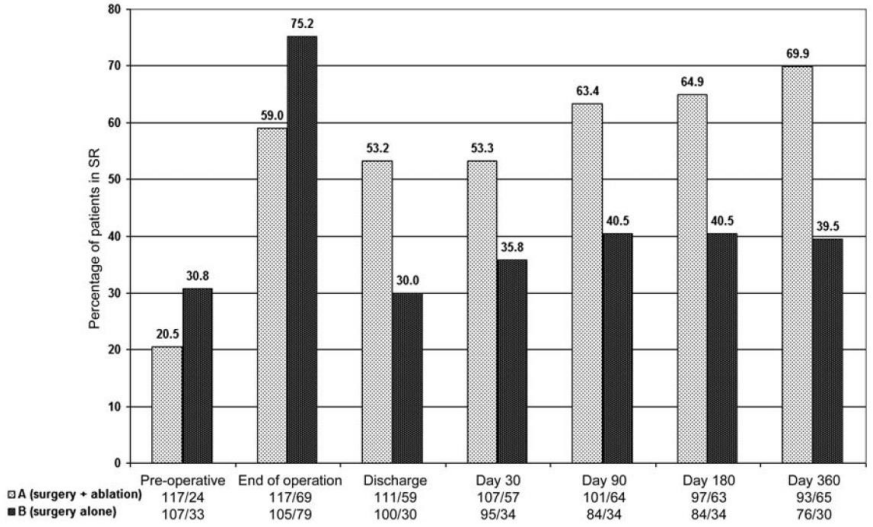
FASTTRACK
ESC HOT LINE

Comparison of cardiac surgery with left atrial surgical ablation vs. cardiac surgery without atrial ablation in patients with coronary and/or valvular heart disease plus atrial fibrillation: final results of the PRAGUE-12 randomized multicentre study†

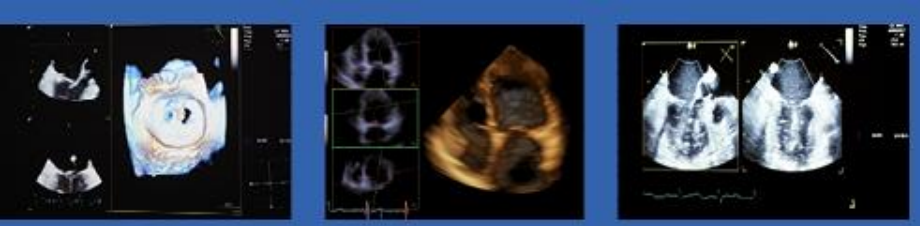
Petr Budera[1]*, Zbyněk Straka[1], Pavel Osmančík[1], Tomáš Vaněk[1], Štěpán Jelínek[1], Jan Hlavička[1], Richard Fojt[1], Pavel Červinka[2], Michal Hulman[3], Michal Šmíd[4], Marek Malý[5], and Petr Widimský[1]

Surgical treatment of AF

- **Significant difference in mantaining SR but no impact on (long-term) mortality**
- **More evident at 1 year for the long-standing persistent AF**
- **Significant also only for MV surgery; CAD could be a risk factor for failure of ablation**



Budera et al, Eur H J 2012



Conclusions

- **Monitor pts with VHD measuring also LA dimension/volume (and function) and consider performing Holter monitoring**
- **Lack of clinical trials comparing rate versus rhythm control specifically in VHD but AF is of prognostic value and represents an indication for surgery (MV)**
- **Consider adding MAZE to surgery for VHD**
- **Consider specific treatment to prevent NOAF after after surgery/percutaneous procedures; when NOAF occurs in principle rate and rhythm controle are comparable options**