Post operative atrial fibrilation (POAF) : What do the Guidelines say ?

Pr. Dan Longrois,

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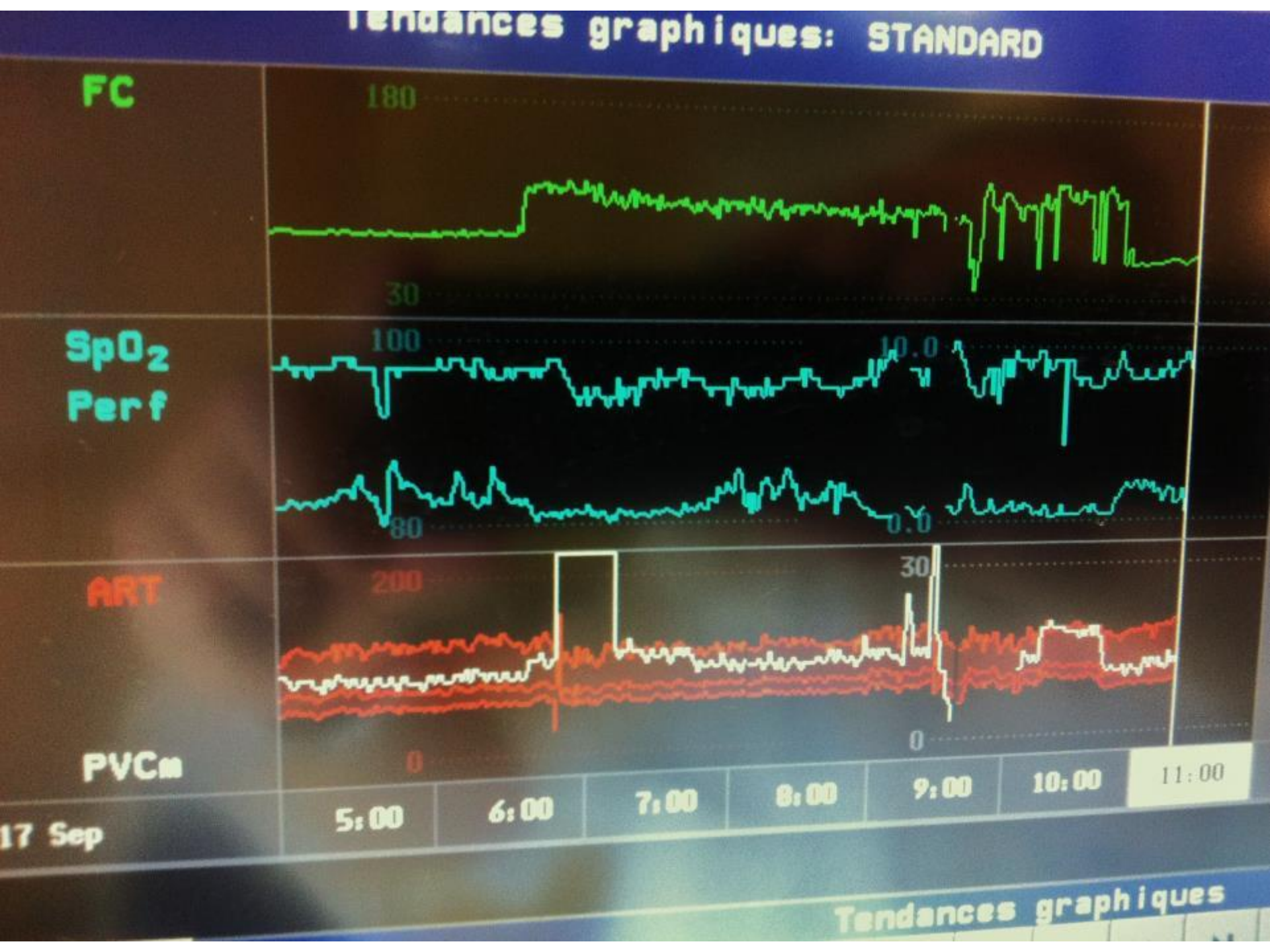
Tendances graphiques: STANDARD
FC
180
30
SpO2
Perf
100
80
10.0
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ART
200
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30
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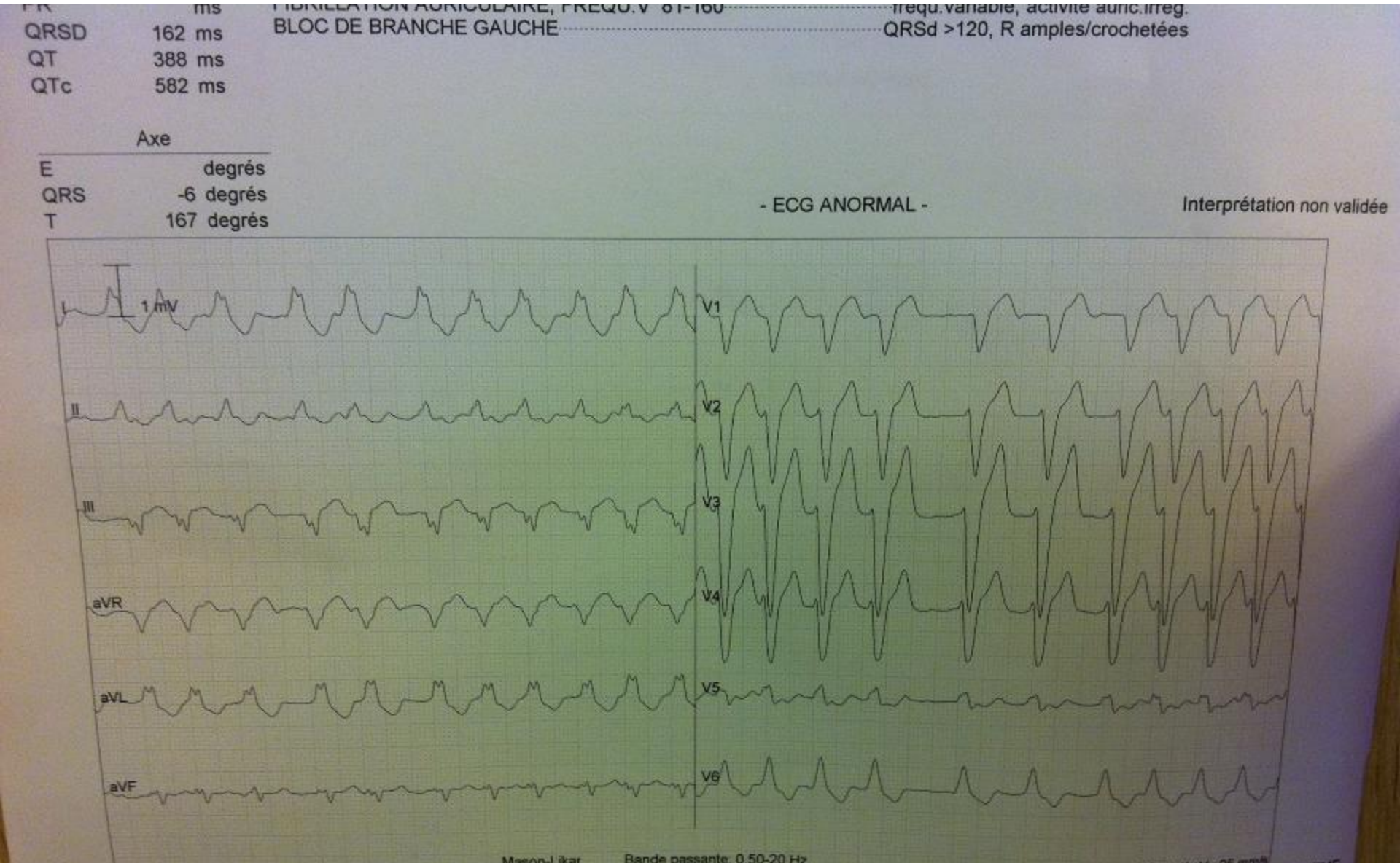
PVCm
5:00
6:00
7:00
8:00
9:00
10:00
11:00
17 Sep
Tendances graphiques

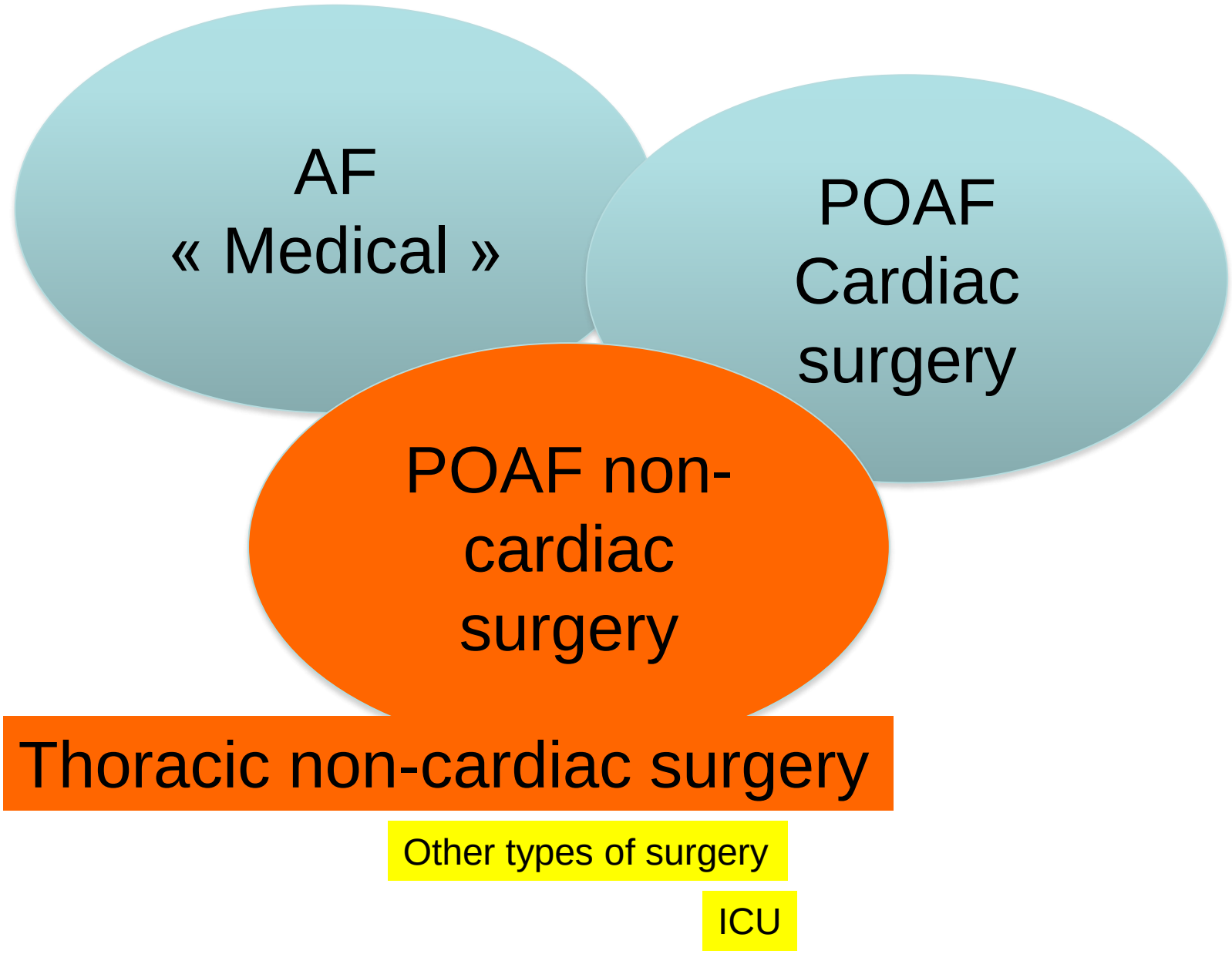
Male, 68 Years, J2 post pneumectomy,asymptomatic POAF, Amiodarone (IV, 2 + 6 Amp/ 24h)



THANK YOU FOR YOUR ATTENTION AND SEE YOU NEXT YEAR !

In fact…

- AF in general
- Epidemiology/pathophysiology of POAF
  - Cardiac surgery/ thoracic surgery/ other types of surgery
- Treatment
  - HD instability/ symptoms
  - HR control
  - Return to sinus rhythm
  - Prevention of re-occurrence of POAF
  - Anticoagulation ?
    - Duration of postoperative anticoagulation ?


AF
« Medical »
POAF
Cardiac
surgery
POAF non-
cardiac
surgery
Thoracic non-cardiac surgery
Other types of surgery
ICU

Atrial fibrillation

Gregory Y H Lip, Hung Fat Tse, Deirdre A Lane

Lancet 2012; 379: 648–61

2011 ACCF/AHA/HRS Focused Updates Incorporated Into the ACC/AHA/ESC 2006 Guidelines for the Management of Patients With Atrial Fibrillation

J Am Coll Cardiol 2011;57:e101–98

Antithrombotic Therapy for Atrial Fibrillation

Antithrombotic Therapy and Prevention of Thrombosis, 9th ed: American College of Chest Physicians Evidence-Based Clinical Practice Guidelines

John J. You, MD; Daniel E. Singer, MD; Patricia A. Howard, PharmD; Deirdre A. Lane, PhD; Mark H. Eckman, MD; Margaret C. Fang, MD, MPH; Elaine M. Hylek, MD, MPH; Sam Schulman, MD, PhD; Alan S. Go, MD; Michael Hughes, PhD; Frederick A. Spencer, MD; Warren J. Manning, MD; Jonathan L. Halperin, MD; and Gregory Y. H. Lip, MD

CHEST 2012; 141(2)(Suppl):e531S–e575S

2011 ACCF/AHA/HRS Focused Update on the Management of Patients With Atrial Fibrillation (Update on Dabigatran): A Report of the American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines

L. Samuel Wann, Anne B. Curtis, Kenneth A. Ellenbogen, N.A. Mark Estes, III, Michael D. Ezekowitz, Warren M. Jackman, Craig T. January, James E. Lowe, Richard L. Page, David J. Slotwiner, William G. Stevenson and Cynthia M. Tracy

Circulation published online Feb 14, 2011;
DOI: 10.1161/CIR.0b013e31820f14c0
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 Print ISSN: 0009-7322. Online ISSN: 1524-4539

Circulation. 2011;123:104 –123

European Heart Journal (2010) 31, 2369–2429
doi:10.1093/eurheartj/ehq278

ESC GUIDELINES

Guidelines for the management of atrial fibrillation

The Task Force for the Management of Atrial Fibrillation of the European Society of Cardiology (ESC)

Developed with the special contribution of the European Heart Rhythm Association (EHRA)†

Endorsed by the European Association for Cardio-Thoracic Surgery (EACTS)

Authors/Task Force Members: A. John Camm (Chairperson) (UK)*, Paulus Kirchhof (Germany), Gregory Y.H. Lip (UK), Ulrich Schotten (The Netherlands), Irene Savelieva (UK), Sabine Ernst (UK), Isabelle C. Van Gelder (The Netherlands), Nawwar Al-Attar (France), Gerhard Hindricks (Germany), Bernard Prendergast

Europace (2016) 18, 1609–1678
doi:10.1093/europace/euw295

ESC GUIDELINES

2016 ESC Guidelines for the management of atrial fibrillation developed in collaboration with EACTS

The Task Force for the management of atrial fibrillation of the European Society of Cardiology (ESC)

Developed with the special contribution of the European Heart Rhythm Association (EHRA) of the ESC

Endorsed by the European Stroke Organisation (ESO)

Europace (2016) 18, 1609–1678
doi:10.1093/europace/euw295

Circulation
JOURNAL OF THE AMERICAN HEART ASSOCIATION

American Heart Association®

2014 AHA/ACC/HRS Guideline for the Management of Patients With Atrial Fibrillation: Executive Summary: A Report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines and the Heart Rhythm Society

Craig T. January, L. Samuel Wann, Joseph S. Alpert, Hugh Calkins, Joseph C. Cleveland, Jr, Joaquin E. Cigarroa, Jamie B. Conti, Patrick T. Ellinor, Michael D. Ezekowitz, Michael E. Field, Katherine T. Murray, Ralph L. Sacco, William G. Stevenson, Patrick J. Tchou, Cynthia M. Tracy and Clyde W. Yancy

Circulation. published online March 28, 2014;
Circulation is published by the American Heart Association, 7272 Greenville Avenue, Dallas, TX 75231

Print ISSN: 0009-7322. Online ISSN: 1524-4539

guideline-directed medical therapy (GDMT) to represent optimal medical therapy as defined by ACC/AHA guideline (primarily Class I)-recommended therapies

Quality and Outcomes

Management of Postoperative Atrial Fibrillation and Subsequent Outcomes in Contemporary Patients Undergoing Cardiac Surgery: Insights From the Society of Thoracic Surgeons CAPS-Care Atrial Fibrillation Registry

Benjamin A. Steinberg, MD; Yue Zhao, PhD; Xia He, MS; Adrian F. Hernandez, MD; David A. Fullerton, MD; Kevin L. Thomas, MD; Roger Mills, MD; Winslow Klaskala, PhD; Eric D. Peterson, MD, MPH; Jonathan P. Piccini, MD, MHS

Department of Medicine (Steinberg, Hernandez, Thomas, Peterson, Piccini), Duke University Medical Center, Durham, North Carolina ; Duke Clinical Research Institute (Steinberg, Zhao, He, Hernandez, Thomas, Peterson, Piccini), Durham, North Carolina; Department of Surgery (Fullerton), University of Colorado, Denver, Colorado; Janssen Research & Development LLC (Mills, Klaskala), Raritan, New Jersey

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Clin. Cardiol. 37, 1, 7–13 (2014)

2014 AATS guidelines for the prevention and management of perioperative atrial fibrillation and flutter for thoracic surgical procedures

Gyorgy Frendl, MD, PhD,[a] Alissa C. Sodickson, MD,[a] Mina K. Chung, MD,[b] Albert L. Waldo, MD, PhD,[c,d] Bernard J. Gersh, MB, ChB, DPhi,[e] James E. Tisdale, PharmD,[f] Hugh Calkins, MD,[g] Sary Aranki, MD,[h] Tsuyoshi Kaneko, MD,[h] Stephen Cassivi, MD,[i] Sidney C. Smith, Jr, MD,[j] Dawood Darbar, MD,[k] Jon O. Wee, MD,[l] Thomas K. Waddell, MD, MSc, PhD,[m] David Amar, MD,[n] and Dale Adler, MD[o]

Thorac Cardiovasc Surg 2014;148:e153-93

Risk factors of AF (1)

- Clinical risk factors
  - Age, HTN, diabetes, obesity, OAS, smoking, alcohol, hyperthyroidia, familiy Hx,
  - Cardiopathies (ischemic, valvular)
  - Heart failure
  - Cardiothoracic surgery
  - European descent
  - Genetic predisposition

NONE OF THEM IS AVOIDABLE

Circulation. 2014;129:□□□–□□□.

Other risk factor of AF (2)

- ECG
  - LVH
- Echocardiography
  - Dilatation of LA
  - Altered LVEF
- Biomarkers
  - Increased BNP/ CRP

NONE OF THEM IS AVOIDABLE

Circulation. 2014;129:□□□–□□□.

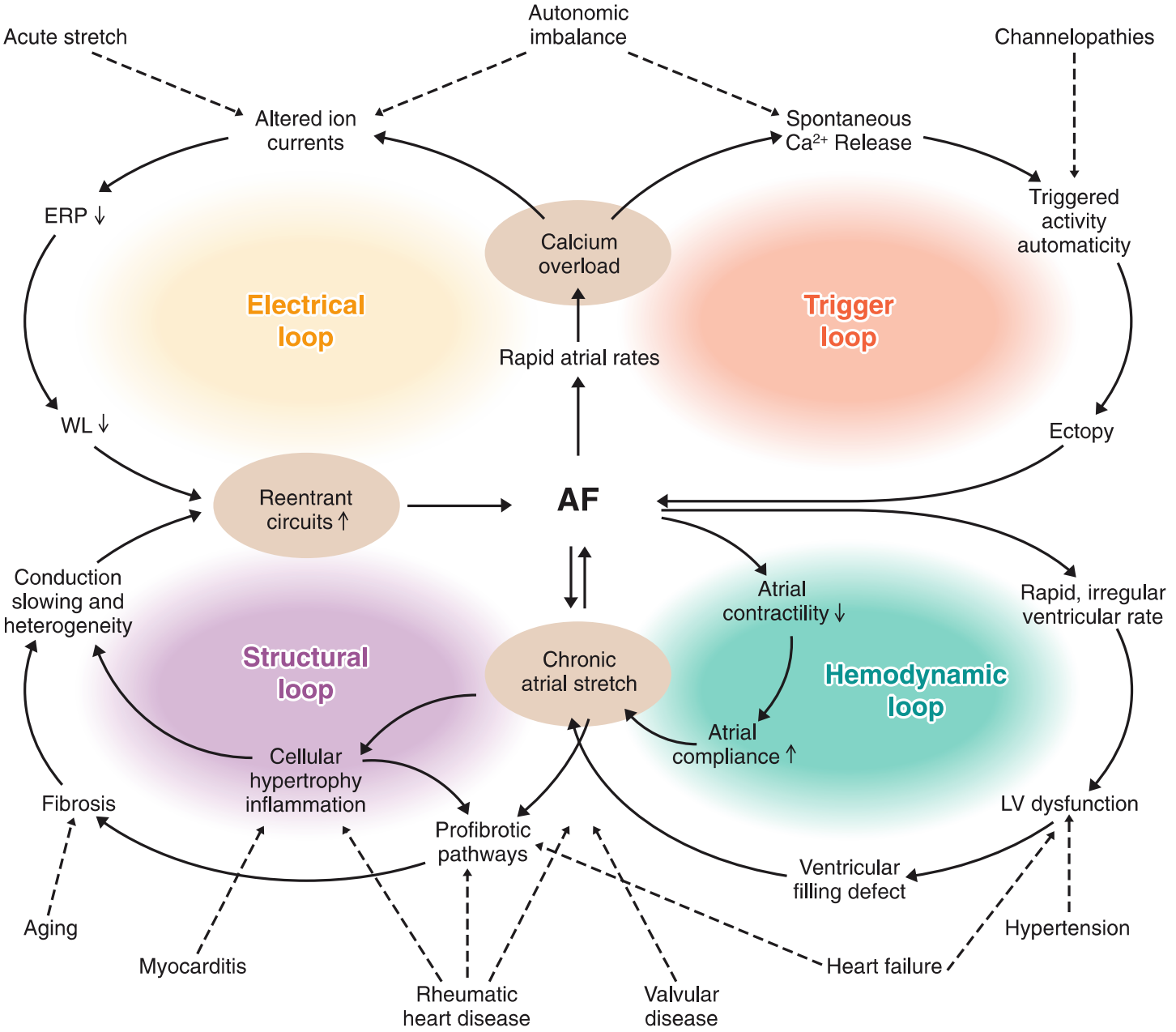
Pathophysiology of AF

Pathophysiological Mechanisms of Atrial Fibrillation: A Translational Appraisal

ULRICH SCHOTTEN, SANDER VERHEULE, PAULUS KIRCHHOF, AND ANDREAS GOETTE

Department of Physiology, University Maastricht, Maastricht, The Netherlands; Department of Cardiology and Angiology, University Hospital of Münster, Münster; and Department of Cardiology, St. Vincenz Hospital, Paderborn and Institute of Clinical Pharmacology, University Hospital Magdeburg, Magdeburg, Germany

Physiol Rev 91: 265–325, 2011;



Physiol Rev 91: 265–325, 2011;

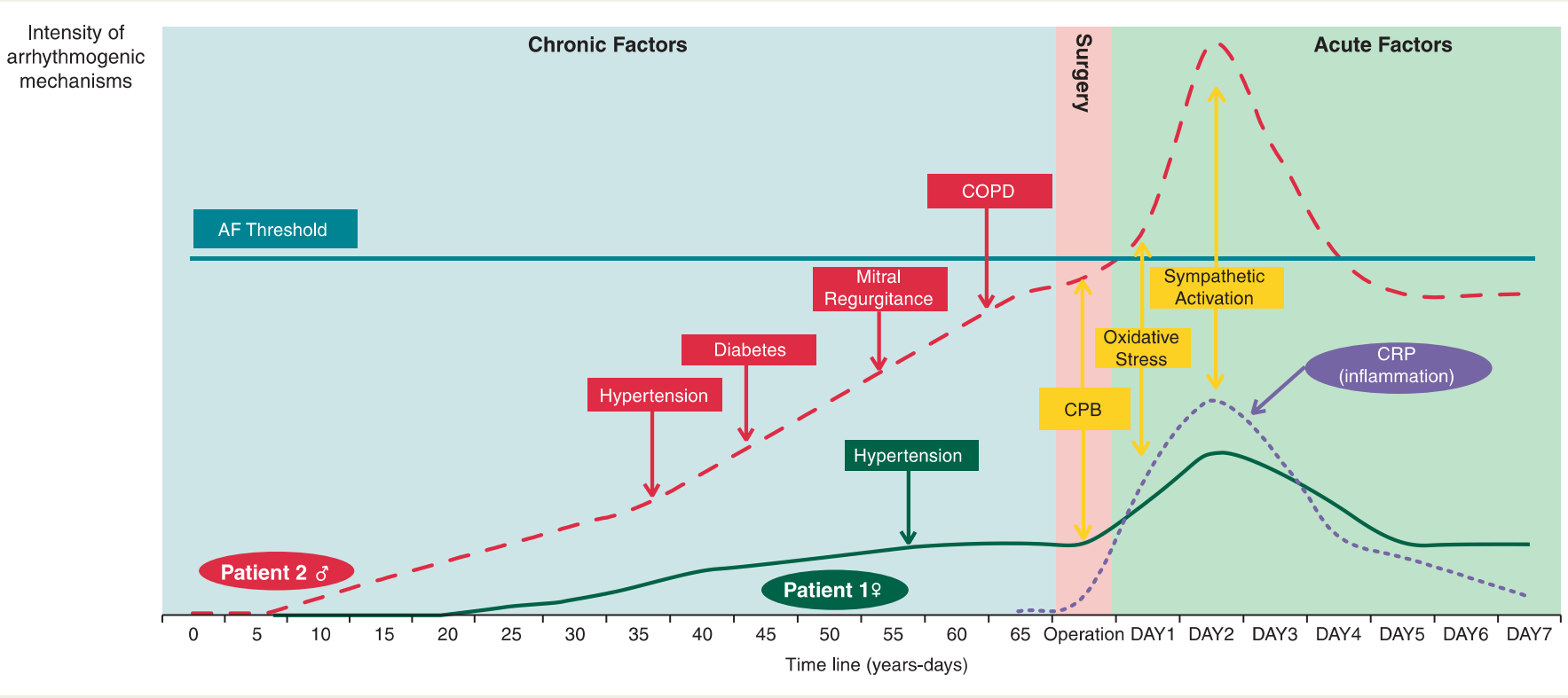


Figure 2 Time course of substrate development and surgery-related factors in the occurrence of atrial fibrillation. Time course of pro-arrhythmic mechanisms is depicted in two hypothetical patients undergoing cardiac surgery. Both chronic as well as acute factors related to the operation on day 0 are shown. When the intensity of pro-arrhythmic factors reaches a certain threshold,[161] atrial fibrillation will occur. Patient 1 has no relevant cardiovascular history, only hypertension (green) at the age of 57. Patient 2 already developed hypertension (red) at a younger age, followed by diabetes (red), mitral regurgitation (red), and COPD (red) at an older age, respectively. Both patients have no history of AF and undergo on-pump coronary artery bypass grafting at the same age. However, patient 2 has developed an AF substrate by the time of operation due to above mentioned cardiovascular diseases. Acute, surgery-related factors occur in both patients: cardiopulmonary bypass (CPB, yellow), inflammation (CRP, purple), oxidative stress (yellow), and sympathetic activation (yellow). Patient 2 develops post-operative atrial fibrillation (exceeds the 'AF threshold'), while patient 1 remains with sinus rhythm. AF, atrial fibrillation; COPD, chronic obstructive pulmonary disease.

Post-operative atrial fibrillation: a maze of mechanisms

Bart Maesen[1,2], Jan Nijs[1], Jos Maessen[1], Maurits Allessie[2], and Ulrich Schotten[2]*

[1]Department of Cardiothoracic Surgery, University Hospital of Maastricht, PO Box 5800, 6202 AZ Maastricht, The Netherlands; and [2]Department of Physiology, University Maastricht, PO Box 616, 6200 MD Maastricht, The Netherlands

Received 24 March 2011; accepted after revision 7 June 2011; online publish-ahead-of-print 6 August 2011

Europace (2012) 14, 159–174

Peaks of incidence different between POAF in cardiac and non-cardiac surgery

Europace (2012) 14, 159–174

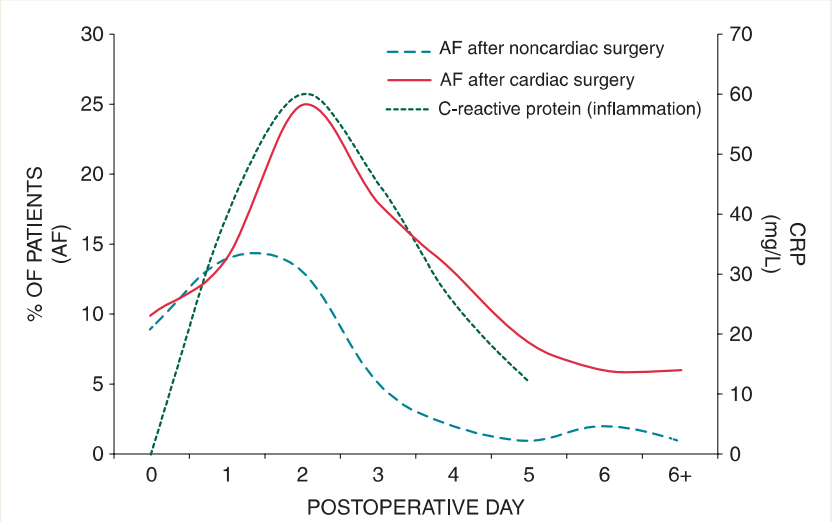


Figure 1 Time course of atrial fibrillation incidence after cardiac and non-cardiac surgery and time course of C-reactive protein after cardiac surgery. Atrial fibrillation incidence after non-cardiac surgery peaks at post-operative day 1 and then rapidly declines to 2% at day 6, while atrial fibrillation incidence after cardiac surgery peaks at post-operative day 2 and slowly declines to around 6 % at day 6. This suggests a 'cardiac factor', related to the specific setting of cardiac surgery. The time course of C-reactive protein is surprisingly similar to that of atrial fibrillation incidence after cardiac surgery, supporting the role for inflammation in the mechanism of post-operative atrial fibrillation (modified from references [4,30,52]).

EPIDEMIOLOGY of POAF:

Cardiac surgery: 30-40 %

What is the incidence of POAF after non-cardiac surgery ?

Incidence of POAF

- Non-cardiac thoracic surgery: 30 %
  - Exploratory thoraco/segmentectomy: 4 %
  - lobectomies, bilobectomies, pneumonectomies : 10-33 %
  - Single/double lung transplantation: 40 %
  - Oesophagectomy: 13-25 % of rhythm abnormalities including POAF.
- TAVI 10-20%

Anesthesiol.Clin. 2008; 26: 325-35

J Cardiothorac.Vasc.Anesth. 2010; 24: 752-61
J Cardiothorac.Vasc.Anesth. 2011;

Epidemiology of AF in ICU patients (outside of the cardiac surgery context)

- AF : relatively frequent in ICU patient

  <u>Surgical ICU:</u>

  3 - 25% POAF

Chung & al, Crit Care Med 2000
Beck-Nielsen & al, Acta Med Scand 1973
Goodman & al, Chest 1978

  <u>Medical ICU :</u>

  6.5% - 20%

Ledingham & al, Lancet 1978
Reinelt & al, Intensive Care Med 2001
Annane & al, AJ Respiratory and Crit Care Med 2008

Incidence of POAF (non-thoracic surgery)

- General surgery: 2-4 % rhythm disturbances including POAF
- Surgical ICU, 5-8 % have POAF
  - In patients with severe sepsis/septic shock, 46 % have a POAF

Frequent spontaneous conversion to sinus rhythm

Crit Care Med. 2004; 32: 722-6
Crit Care. 2010; 14: R108

Is POAF a « severe » complication ?

- Yes in cardiac surgery
  - POAF is an independent risk factor for short term/long term mortality and for postoperative stroke
  - This statistical association justifies prevention/ treatment

Association between POAF and complications (chronology not taken into account)

- post-op stroke : OR 2.23 [1.78-2.80] P <.00001
- Resp failure: OR 2.30 [1.71-3.11] P <.00001
- Card failure: OR 1.82 [0.78-4.23] P = 0.2
- MI : OR 0.98 [0.56-1.71] P= 0.9
- LOS: OR 1.48 [1.09–1.87] P <.00001

J Thorac Cardiovasc Surg 2011;141:1305-12

And in the other types of surgery ?

Atrial Fibrillation After Pulmonary Transplantation

Incidence, Impact on Mortality, Treatment Effectiveness, and Risk Factors

- Incidence: 29% (65/224 patients)
- Emphysema: 37% / Mucoviscidosis:27%
- Bi pulmonary: 56%
- ***Amiodarone: in 56% of patients with POAF***

Risk factors for mortality (multivariate analysis)

Bronchial leak:	3.8 (1.4-10.2); P = 0.007
Vasoconstrictors during surg	2.3 (0.9-7.9); P = 0.06
POAF	1.5 (0.5-4.6); P= 0.4

Lack of statistical power very probable

Henri C *et al*. Circ Arrhythm Electrophysiol. 2012;5:61-7

Management of POAF

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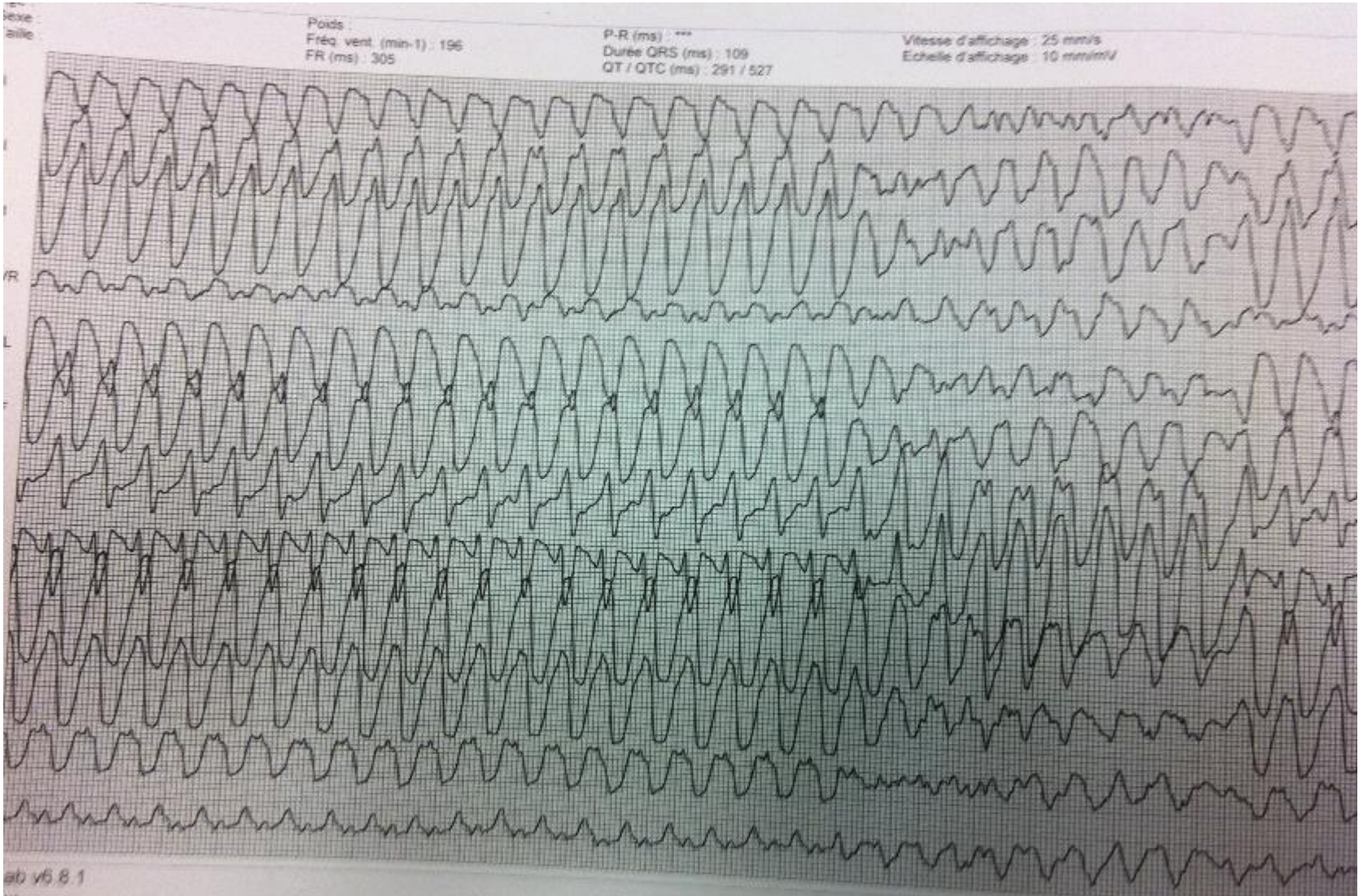
J Thorac Cardiovasc Surg 2014;148:e153-93

Attempt to get a preoperatoy EKG (pre-excitation, long QTc)

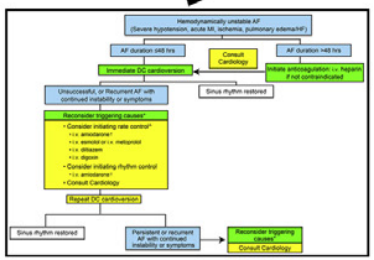


New onset AF after thoracic surgery

- Consider triggering cause*
- Minimize catecholaminergic inotropes as possible
- Optimize fluid status
- Correct electrolyte/metabolic imbalances

Hemodynamically unstable (Severe hypotension, acute MI, ischemia, pulmonary edema/HF)

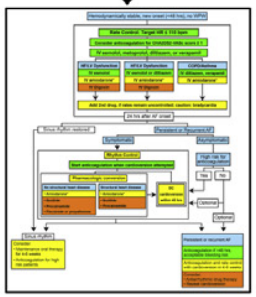
Fig 3



Hemodynamically stable, new onset, no WPW

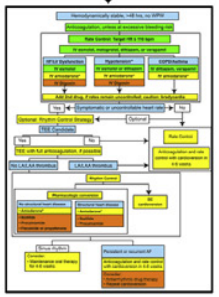
<48 hrs

Fig 4



>48 hrs

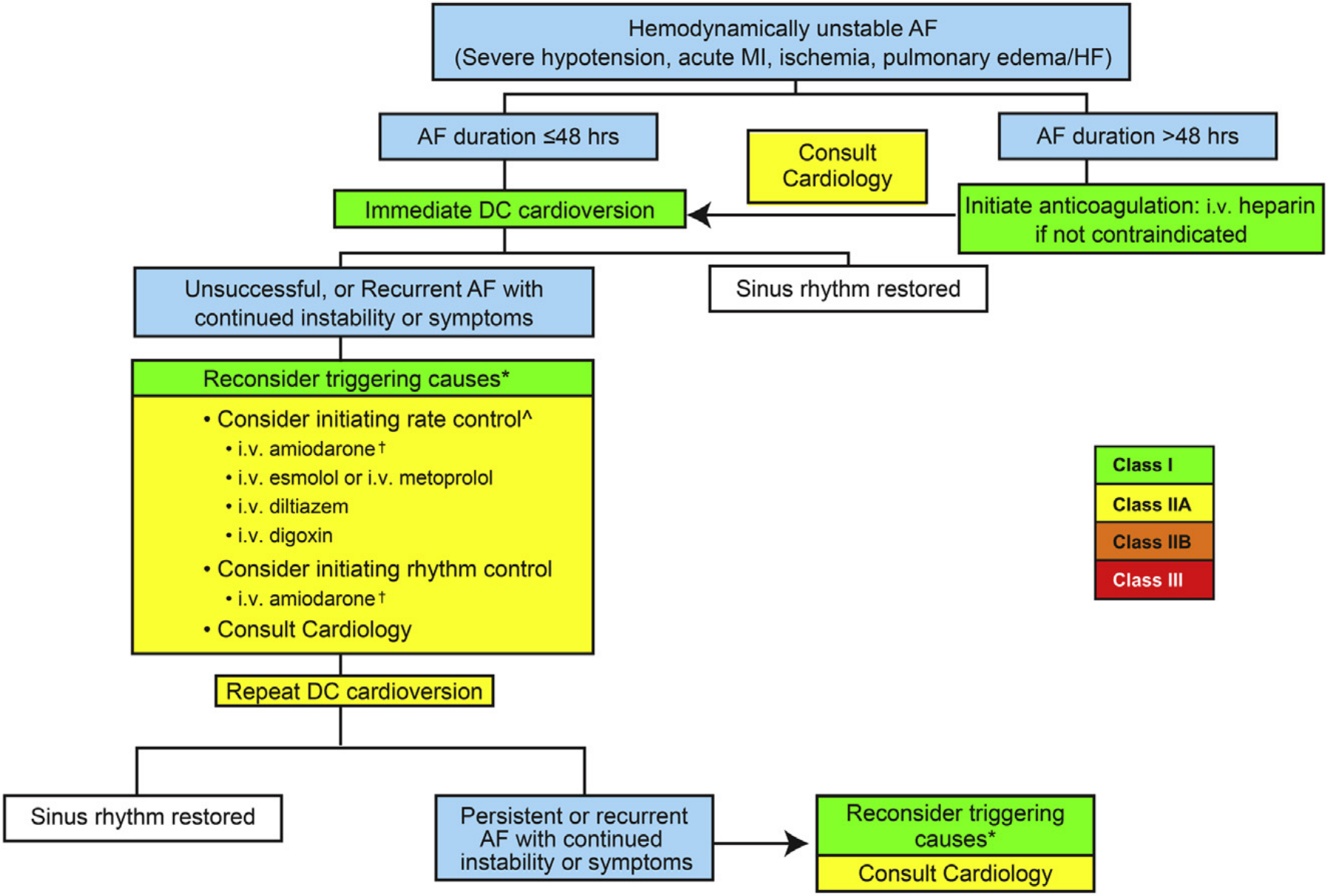
Fig 5



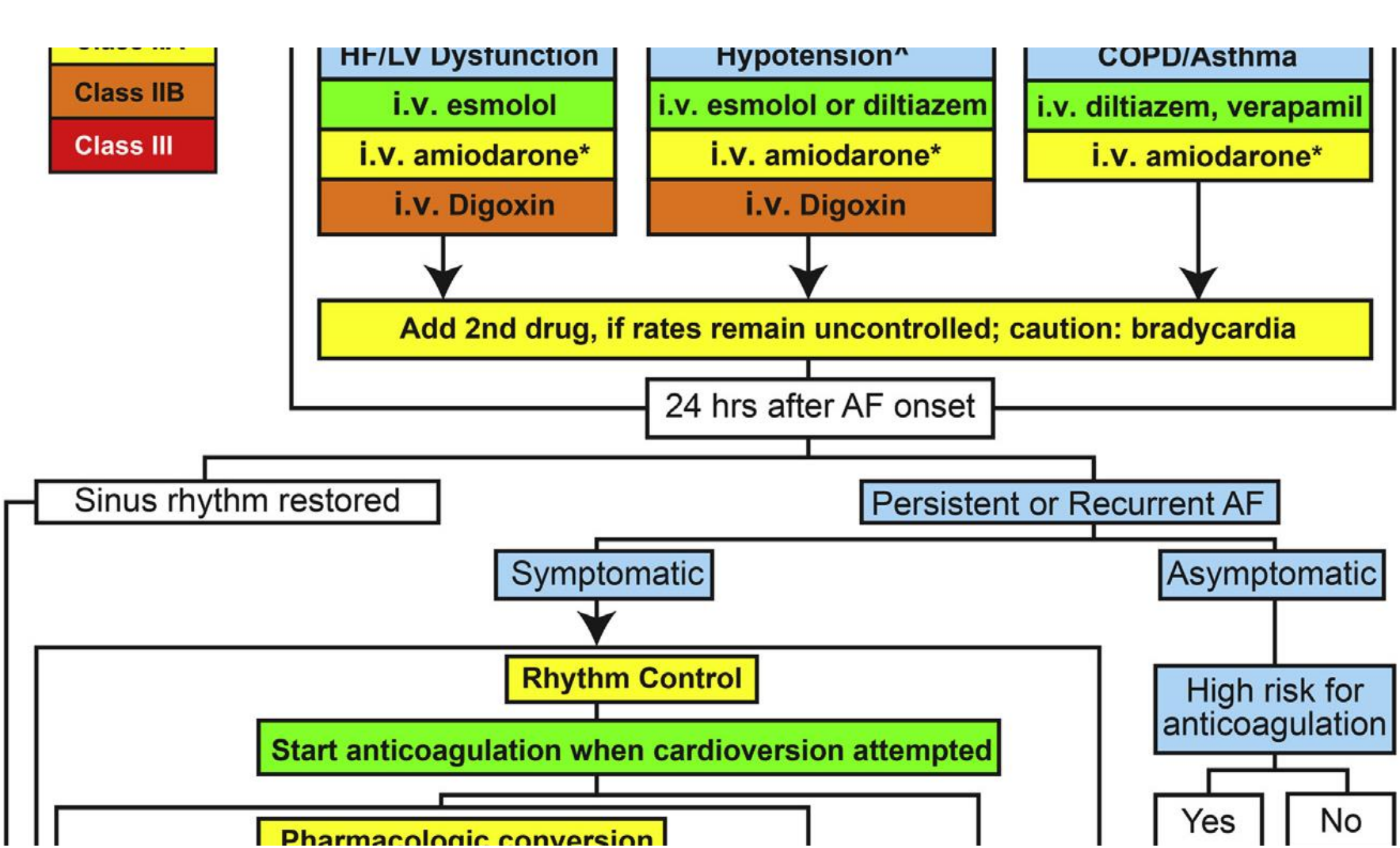
Class I
Class IIA
Class IIB
Class III

* **Potential triggering causes:**
bleeding, pulmonary embolism, pneumothorax, pericardial processes, airway issues, myocardial ischemia, or infection/sepsis

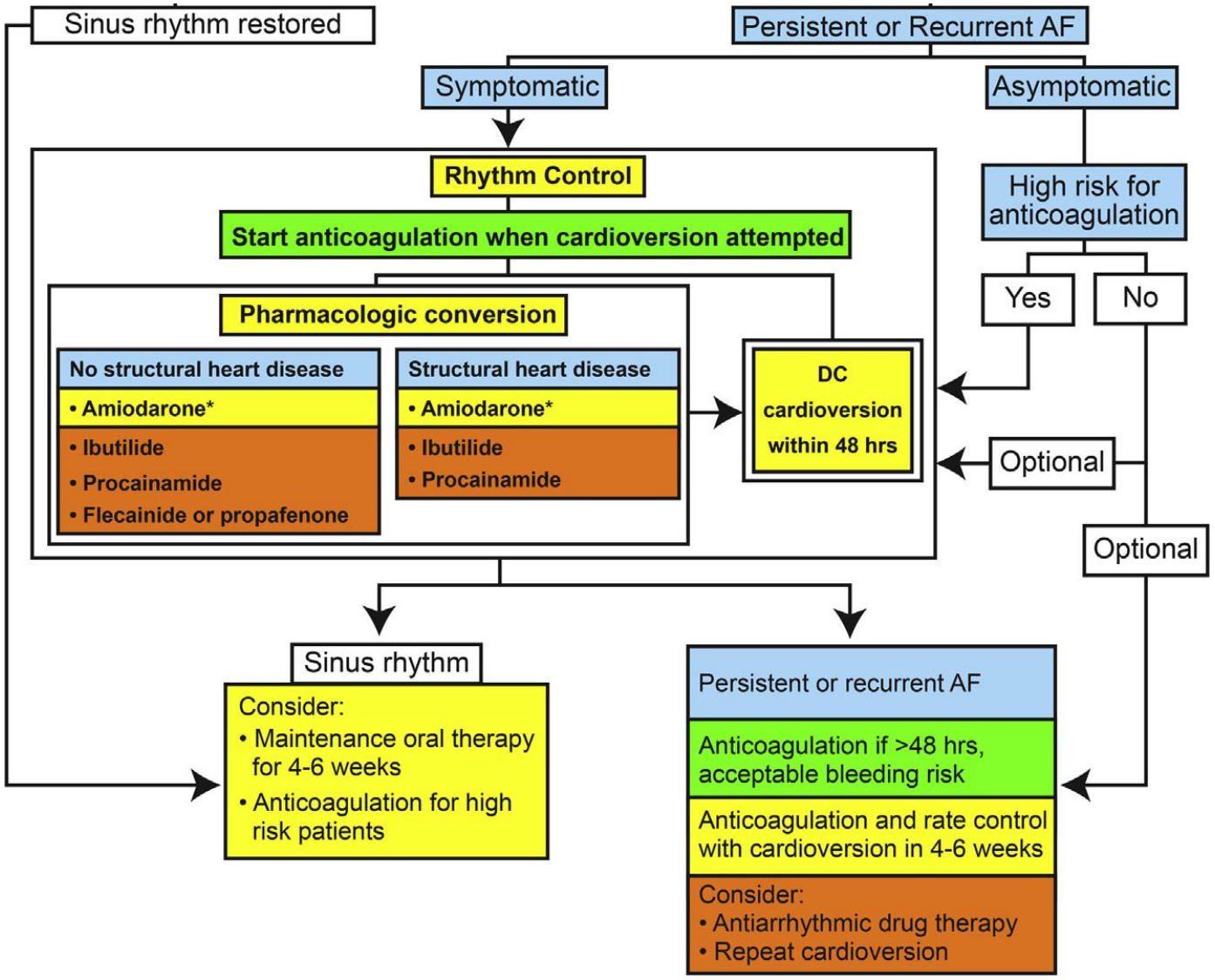
J Thorac Cardiovasc Surg 2014;148:e153-93



J Thorac Cardiovasc Surg 2014;148:e153-93

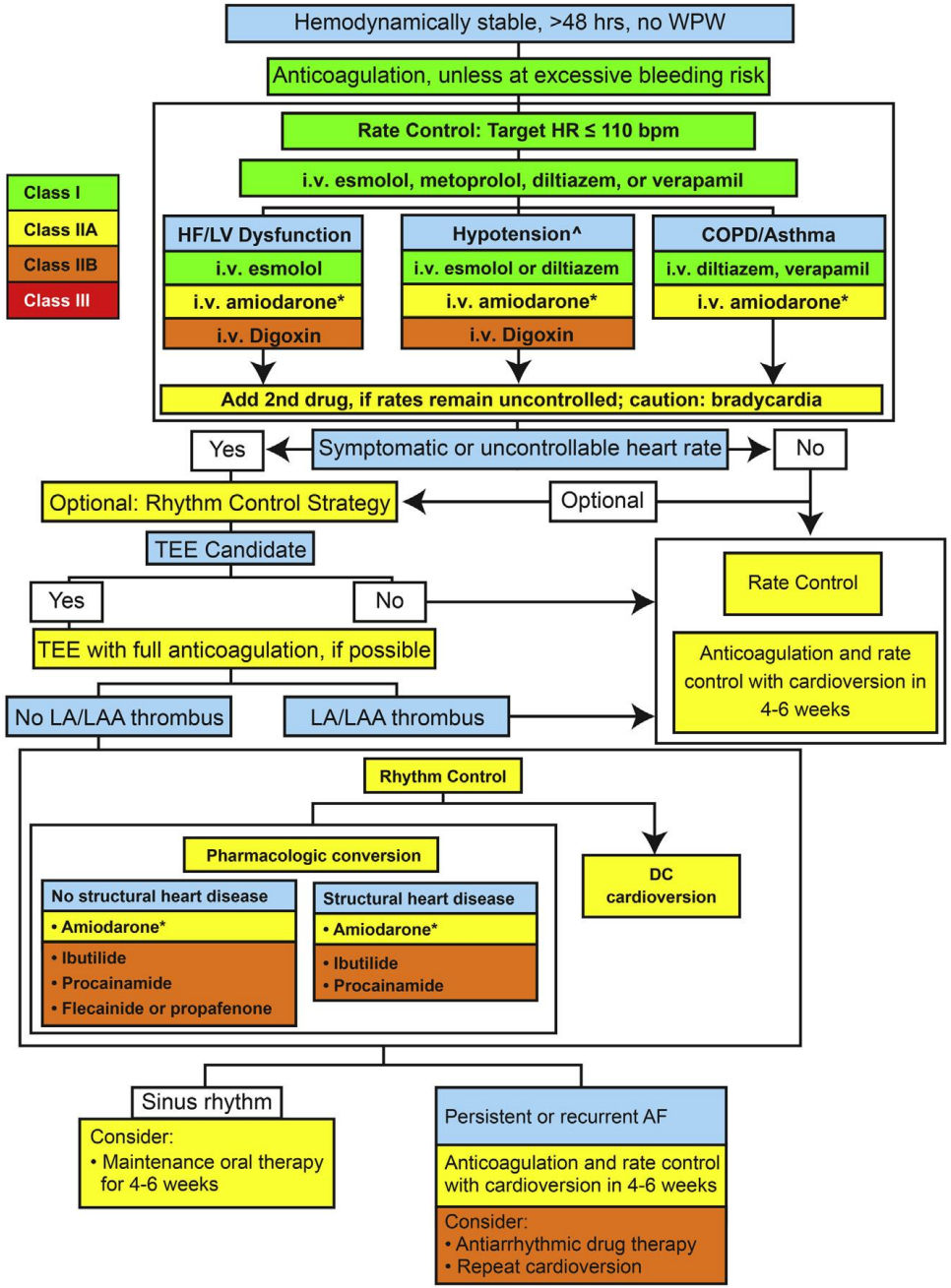


J Thorac Cardiovasc Surg 2014;148:e153-93



*Caution should be exercised and a TEE considered if amiodarone is used after 48 hours after the onset of AF, as there is a possibility that the rhythm could convert with risk of thromboembolism.

^Esmolol or diltiazem first line depending on degree of hypotension



*Caution should be exercised and a TEE considered if amiodarone is used after 48 hours after the onset of AF, as there is a possibility that the rhythm could convert with risk of thromboembolism.
^Esmolol or diltiazem first line depending on degree of hypotension

Severe symptoms of POAF ?

Table 6 **EHRA score of AF-related symptoms**

Classification of AF-related symptoms (EHRA score)	
EHRA class	**Explanation**
EHRA I	'No symptoms'
EHRA II	'Mild symptoms'; normal daily activity not affected
EHRA III	'Severe symptoms'; normal daily activity affected
EHRA IV	'Disabling symptoms'; normal daily activity discontinued

AF = atrial fibrillation; EHRA = European Heart Rhythm Association.

Why control HR before cardioversion ?

- Low primary success of cardioversion (35 %)
- In medical cardiology seting amiodarone vs placebo => 64 % of return to SR at 24h in the placebo group [1]
- **Re-occurrence of POAF** , 38 - 62 % of cases at 24h and 48h [2]

[1] Fuster V *et al*. Circulation 2011; 123: e269-367

[2] Mayr A et al. Crit Care Med 2003; 31: 401-3

What drugs/doses to be used to treat POAF ?

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The Journal of Thoracic and Cardiovascular Surgery c Volume 148, Number 3

TABLE 6. Commonly used rate control agents

Drug	Recommended doses	Significant limitations and known side effects
Diltiazem	0.25 mg/kg IV loading dose over 2 min, then 5-15 mg/h IV continuous infusion	Hypotension Bradycardia Heart failure exacerbation
Digoxin	0.25 mg IV repeated every 2-4 h to a maximum dose of 1.5 mg over 24 h	Nausea, vomiting, anorexia Confusion AV block Ventricular arrhythmias Accumulates in acute kidney injury/chronic kidney disease
Esmolol	500 μg/kg IV bolus over 1 min, then 50-300 μg/kg/min IV continuous infusion	Bradycardia Hypotension Bronchospasm Heart failure exacerbation
Metoprolol	2.5-5.0 mg IV bolus over 2 min; maximum 3 doses	Bradycardia Hypotension Bronchospasm Heart failure exacerbation
Amiodarone	150-300 mg IV over 1 h, followed by 10-50 mg/h IV continuous infusion over 24 h	Bradycardia QT interval prolongation Pulmonary toxicity has not been demonstrated at this dose

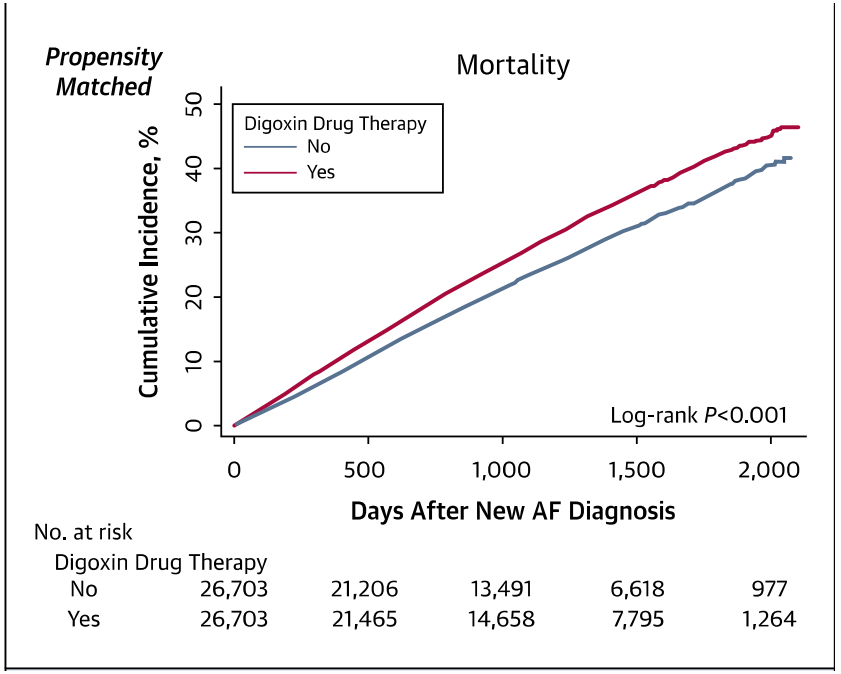
n; Detailed information in section 3 and in references 2 and 3. *IV*, Intravenous; *AV*, atrioventricular.

Increased Mortality Associated With Digoxin in Contemporary Patients With Atrial Fibrillation

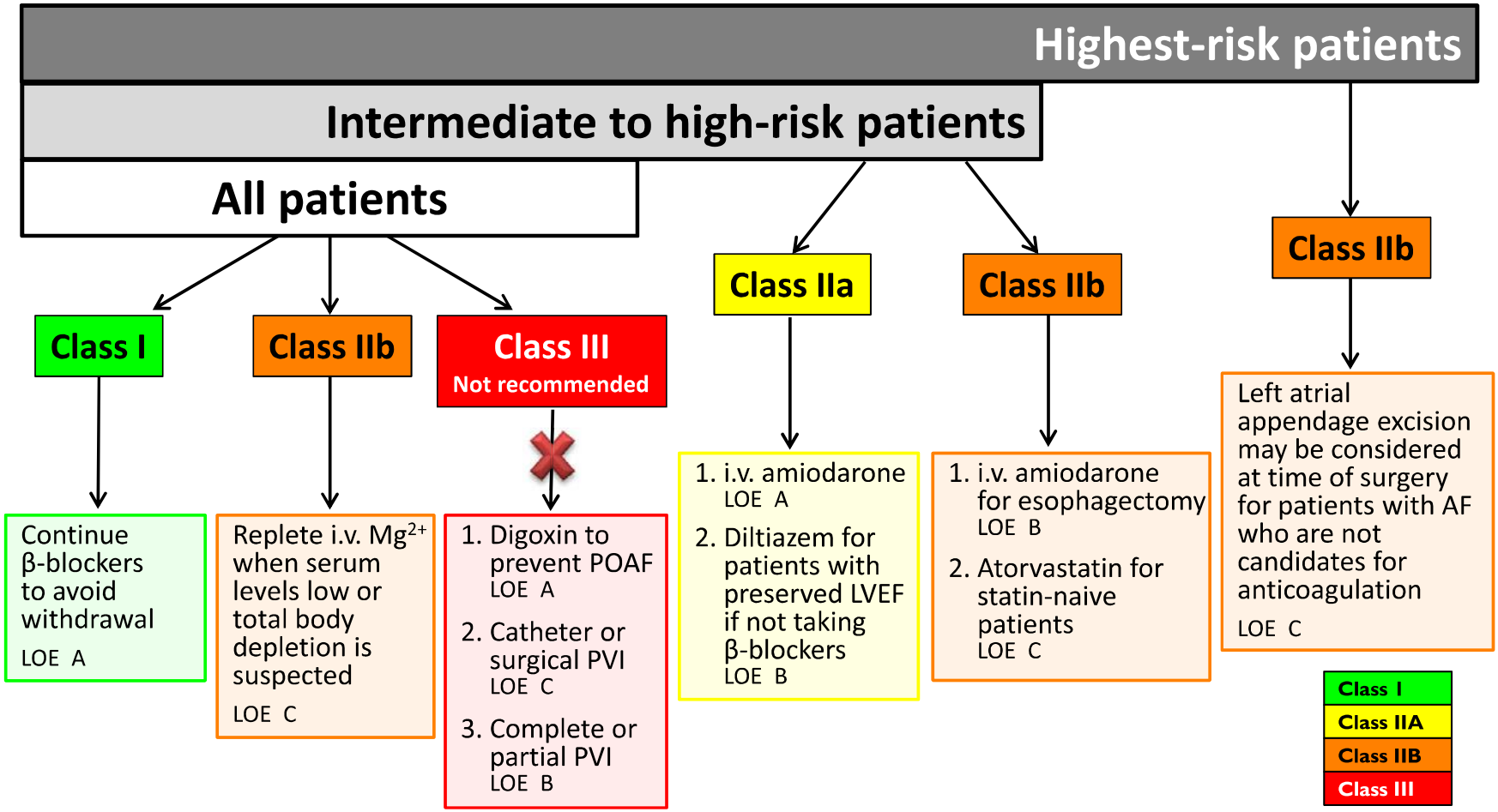
Findings From the TREAT-AF Study

	Digoxin Prescribed Within 90 Days After AF Diagnosis		
	Yes (n = 28,679)	No (n = 93,786)	p Value

Mintu P. Turakhia, MD, MAS,*† Pasquale Santangeli, MD,†‡ Wolfgang C. Winkelmayer, MD, MPH, ScD,§ Xiangyan Xu, MS,* Aditya J. Ullal, BA,* Claire T. Than, MPH,* Susan Schmitt, PhD,* Tyson H. Holmes, PhD,‖ Susan M. Frayne, MD, MPH,*¶ Ciaran S. Phibbs, PhD,*# Felix Yang, MD,** Donald D. Hoang, BA,* P. Michael Ho, MD, PhD,†‡‡‡ Paul A. Heidenreich, MD, MS*†



J Am Coll Cardiol 2014;64:660–8



J Thorac Cardiovasc Surg 2014;148:e153-93

Pulmonary toxicity of amiodarone:

- Dose-dependance :
  - 1st prescriptions (> 400mg/j) : toxicity 5 à 15%
  - Doses < 400mg/j : toxicity 1,6 à 2%
  - **NO non-toxic doses[2]**
- Cumulative doses are to be taken into consideration
- Risk factors for pulmonary toxicity: male gender, age[1]
- Ethnic factor ?
- Oxygenotherapy, mech ventilation, after cardiac surgery

[1] L. Pilote, Am J Cardiol 2011

[2] Int J Cardiol**.** 2011 Nov.

Amiodarone and the Development of ARDS After Lung Surgery

- Prospective randomized study 100 pneumectomies and 200 lobectomies
- Comparaison: amiodarone/verapamil versus Placebo
- Amiodarone:150 mg IV in 2 min then 1200 mg/j for 3 days
- Study interrupted: too many side effects in the amiodarone arm

Table 1—*Incidence of Atrial Fibrillation and Side Effects in Patients After Lobectomy (n=64) or Pneumonectomy (n=32) During the 3 Days of Postoperative Treatment**

	Lobectomy			Pneumonectomy		
	P	A	V	P	A	V
No. of patients	22	21	21	10	11	11
AF	6	1	0	1	0	0
H	0	1	3	1	0	0
ARDS	0	0	0	0	3	0

Van Mieghem W *et al*. Chest 1994; 105:1642-5

Amiodarone and the Development of ARDS After Lung Surgery

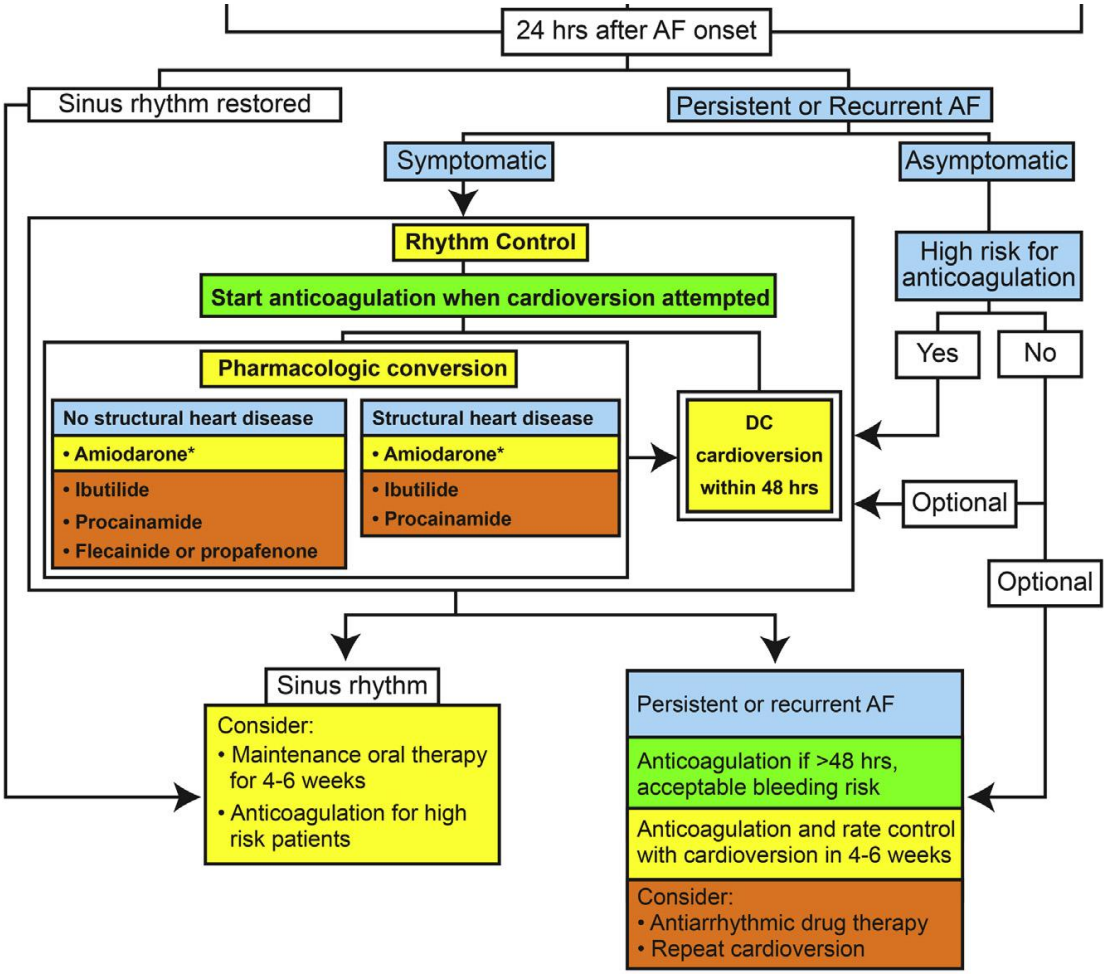
- Retrospective study of 310 lobectomies and 242 pneumonectomies on 5 years
- Incidence of POAF: 19%
- ARDS:
  - 11% of patients treated with amiodarone vs 1.8% (P<0,0001) in patients without amiodarone
  - pneumonectomies > lobectomies

- Pathophysiology not known

Amiodarone nor recommanded in patients with pneumonectomy ++

Van Mieghem W *et al*. Chest 1994; 105:1642-5

Anticoagulation of POAF



*Caution should be exercised and a TEE considered if amiodarone is used after 48 hours after the onset of AF, as there is a possibility that the rhythm could convert with risk of thromboembolism.

^Esmolol or diltiazem first line depending on degree of hypotension

High risk of TE for medical AF

CHADS2	
ICC	1
Hypertension	1
Age ≥75 years	1
Diabetes	1
Stroke/TIA/TE	2
Maximum	6

Table 7 $CHADS_2$ score and stroke rate

$CHADS_2$ score	Patients (n = 1733)	Adjusted stroke rate (%/year)[a] (95% confidence interval)
0	120	1.9 (1.2–3.0)
1	463	2.8 (2.0–3.8)
2	523	4.0 (3.1–5.1)
3	337	5.9 (4.6–7.3)
4	220	8.5 (6.3–11.1)
5	65	12.5 (8.2–17.5)
6	5	18.2 (10.5–27.4)

Table 8 CHA_2DS_2VASc score and stroke rate

(a) Risk factors for stroke and thrombo-embolism in non-valvular AF	
'Major' risk factors	**'Clinically relevant non-major' risk factors**
Previous stroke, TIA, or systemic embolism Age ≥75 years	Heart failure or moderate to severe LV systolic dysfunction (e.g. LV EF ≤40%) Hypertension - Diabetes mellitus Female sex - Age 65–74 years Vascular disease[a]

(b) Risk factor-based approach expressed as a point based scoring system, with the acronym CHA_2DS_2-VASc (Note: maximum score is 9 since age may contribute 0, 1, or 2 points)	
Risk factor	**Score**
Congestive heart failure/LV dysfunction	1
Hypertension	1
Age ≥75	2
Diabetes mellitus	1
Stroke/TIA/thrombo-embolism	2
Vascular disease[a]	1
Age 65–74	1
Sex category (i.e. female sex)	1
Maximum score	**9**

Recommandations for anticoagulation of medical AF

Table 9 **Approach to thromboprophylaxis in patients with AF**

Risk category	CHA_2DS_2-VASc score	Recommended antithrombotic therapy
One 'major' risk factor or ≥2 'clinically relevant non-major' risk factors	≥ 2	OAC[a]
One 'clinically relevant non-major' risk factor	1	Either OAC[a] or aspirin 75–325 mg daily. Preferred: OAC rather than aspirin.
No risk factors	0	Either aspirin 75–325 mg daily or no antithrombotic therapy. Preferred: no antithrombotic therapy rather than aspirin.

Risk of bleeding

Table 10 **Clinical characteristics comprising the HAS-BLED bleeding risk score**

Letter	Clinical characteristic[a]	Points awarded
H	Hypertension	1
A	Abnormal renal and liver function (1 point each)	1 or 2
S	Stroke	1
B	Bleeding	1
L	Labile INRs	1
E	Elderly (e.g. age >65 years)	1
D	Drugs or alcohol (1 point each)	1 or 2
		Maximum 9 points

Recommendations for preventing postoperative atrial fibrillation

Recommendations	Class[a]	Level[b]	Ref[C]
Peri-operative oral beta-blocker therapy is recommended for the prevention of post-operative AF after cardiac surgery.	I	B	925, 928
Restoration of sinus rhythm by electrical cardioversion or antiarrhythmic drugs is recommended in postoperative AF with haemodynamic instability.	I	C	

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Recommendations for preventing postoperative atrial fibrillation

Long-term anticoagulation should be considered in patients with AF after cardiac surgery at risk for stroke, considering individual stroke and bleeding risk.	**IIa**	**B**	368, 386
Antiarrhythmic drugs should be considered for symptomatic postoperative AF after cardiac surgery in an attempt to restore sinus rhythm.	**IIa**	**C**	

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Recommendations for preventing postoperative atrial fibrillation

Peri-operative amiodarone should be considered as prophylactic therapy to prevent AF after cardiac surgery.	**IIa**	**A**	905
Asymptomatic postoperative AF should initially be managed with rate control and anticoagulation.	**IIa**	**B**	962
Intravenous vernakalant may be considered for cardioversion of postoperative AF in patients without severe heart failure, hypotension, or severe structural heart disease (especially aortic stenosis).	**IIb**	**B**	603

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Messages (1)

- Level of knowledge/ stength of recommandations
  - Medical AF> POAF cardiac surgery > POAF thoracic (non cardiac) surgery > POAF other surgeries> AF in ICU patients
- Present day extrapolations from cardiac surgery not always warranted +++++
  - Especially anticoagulation of transient POAF (risk scores for TE/Bleeding)

Messages (2)

- As compared to widespread practice:
  - HR control and return to SR are different goals with different drug strategies
  - Do not forget/underestimate the toxicity of amiodarone
    - Contra-indicated in patients who underwent pneumonectomy/other severe lung lesions ?
- Continue anti-arhythmia therapy for 1 month

Messages (3)

- The most difficult part concerns the indications/duration of anticoagulation
  - Risks of TE/Bleeding extrapolated from the medical literature
  - When to start anticoagulation ?
  - Choice of anticoagulants/doses
  - Duration: 1 month after return to SR
    - Cardiac surgery
    - Non-cardiac surgery

Messages (end)

- The complexity of managing POAF is such that it renders the “Heart Team” necessary
  - Prophylaxis, treatment
    - Anticoagulation ?
- Multidisciplinary decisions
  - Including the surgeon and the patient (if possible)
- Well traced in the medical record with information provided to the family/patient

Routine Anticoagulation Is Not Indicated for Postoperative General Thoracic Surgical Patients With New-Onset Atrial Fibrillation

Zeena Makhija, MBBS, Mark S. Allen, MD, Dennis A. Wigle, MD, PhD, K. Robert Shen, MD, Stephen D. Cassivi, MD, MS, Francis C. Nichols III, MD, and Claude Deschamps, MD

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Ann Thorac Surg 2011;92:421–7

Table 4. Stroke Incidence With or Without Anticoagulation by $CHADS_2$ Score[a]

$CHADS_2$ Score	Not Anticoagulated		Anticoagulated	
	Patients No. (%)	Stroke No. (%)	Patients No. (%)	Stroke No. (%)
0	183 (34.5)	. . .	62 (27.2)	1 (1.6)
1	194 (36.5)	. . .	79 (34.6)	1 (1.3)
2	112 (21.1)	2 (1.8)	62 (27.2)	1 (1.6)
3	26 (4.9)	. . .	15 (6.6)	1 (6.7)
4	15 (2.8)	1 (6.7)	5 (2.2)	. . .
5	1 (0.2)	. . .	4 (1.8)	1 (25.0)
6	0 (0.0)	. . .	1 (0.4)	. . .

[a] $CHADS_2$ is calculated as congestive heart failure history, 1 point; hypertension history, 1 point; age $\geq$ 75, 1 point; diabetes mellitus history, 1 point; previous stroke symptoms or transient ischemic attack, 2 points.

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ESC/ESA GUIDELINES

2014 ESC/ESA Guidelines on non-cardiac surgery: cardiovascular assessment and management

The Joint Task Force on non-cardiac surgery: cardiovascular assessment and management of the European Society of Cardiology (ESC) and the European Society of Anaesthesiology (ESA)

Authors/Task Force Members: Steen Dalby Kristensen* (Chairperson) (Denmark), Juhani Knuuti* (Chairperson) (Finland), Antti Saraste (Finland), Stefan Anker (Germany), Hans Erik Bøtker (Denmark), Stefan De Hert (Belgium), Ian Ford (UK), Jose Ramón Gonzalez-Juanatey (Spain), Bulent Gorenek (Turkey), Guy Robert Heyndrickx (Belgium), Andreas Hoeft (Germany), Kurt Huber (Austria), Bernard Iung (France), Keld Per Kjeldsen (Denmark), Dan Longrois (France), Thomas F. Lüscher (Switzerland), Luc Pierard (Belgium), Stuart Pocock (UK), Susanna Price (UK), Marco Roffi (Switzerland), Per Anton Sirnes (Norway), Miguel Sousa-Uva (Portugal), Vasilis Voudris (Greece), Christian Funck-Brentano (France).

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Thank you for your attention

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