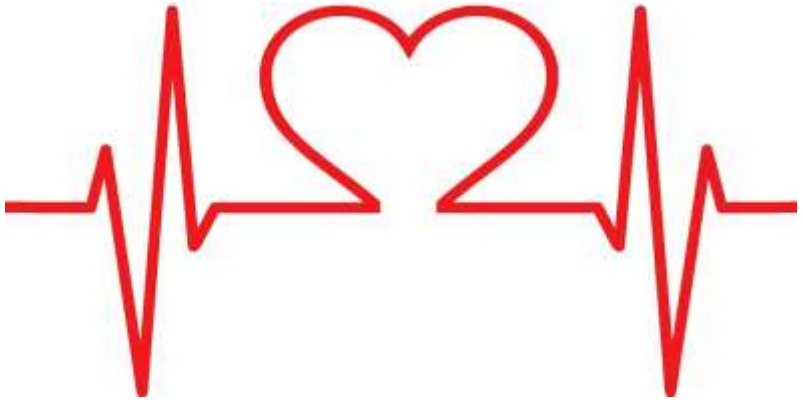
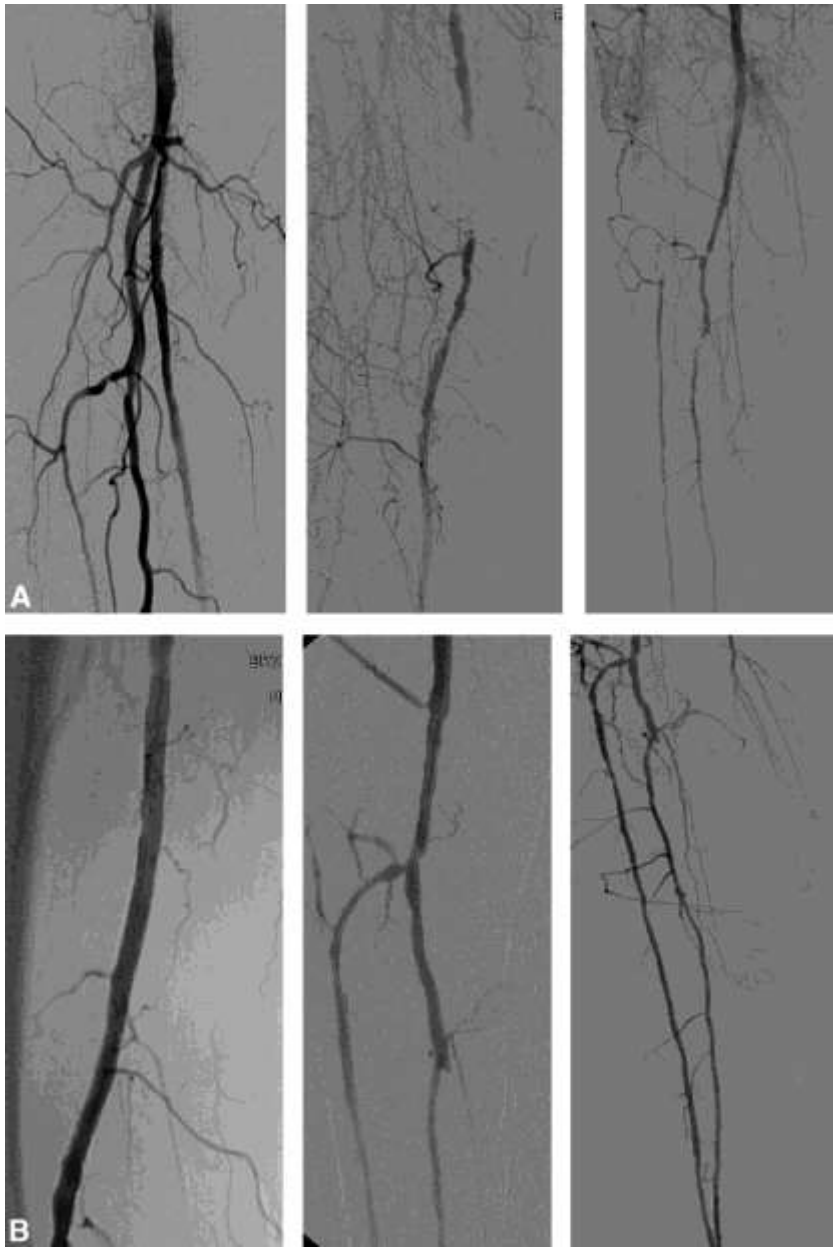
Bilan cardiologique du patient claudicant : pourquoi et comment?



9ème Congrès de l'ACTVOI
26-29 octobre 2017, Maurice

Jean-Philippe BAGUET
Cardiologie, Le Tampon, La Réunion

L’auteur déclare n’avoir aucun lien d’intérêt en rapport avec la présente communication.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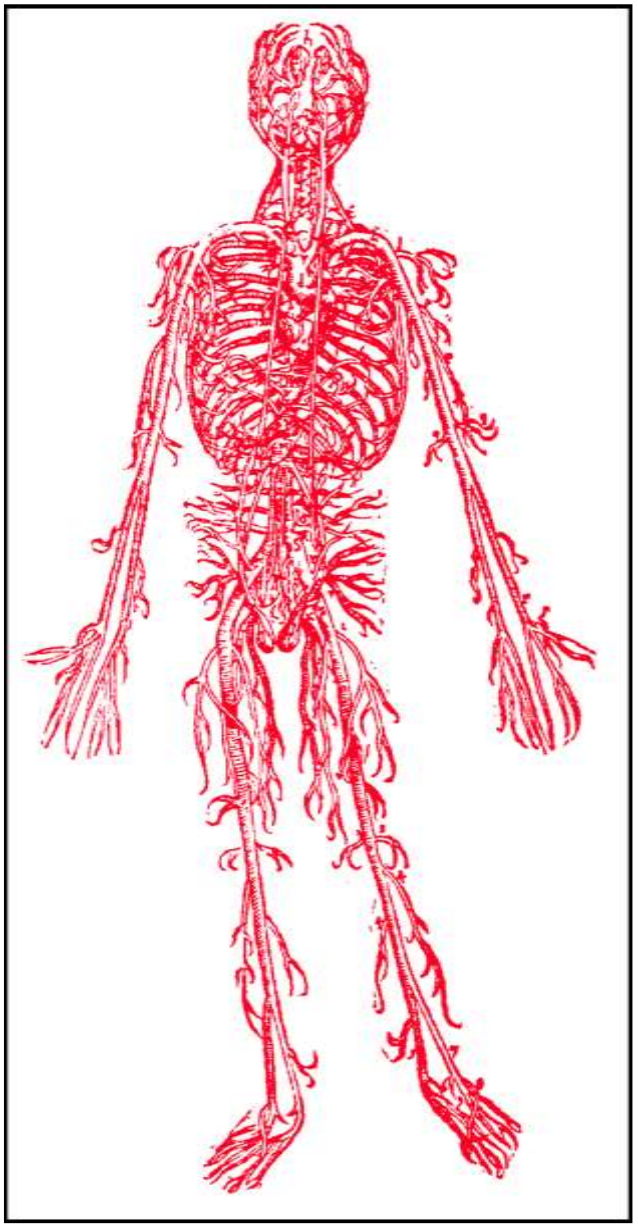

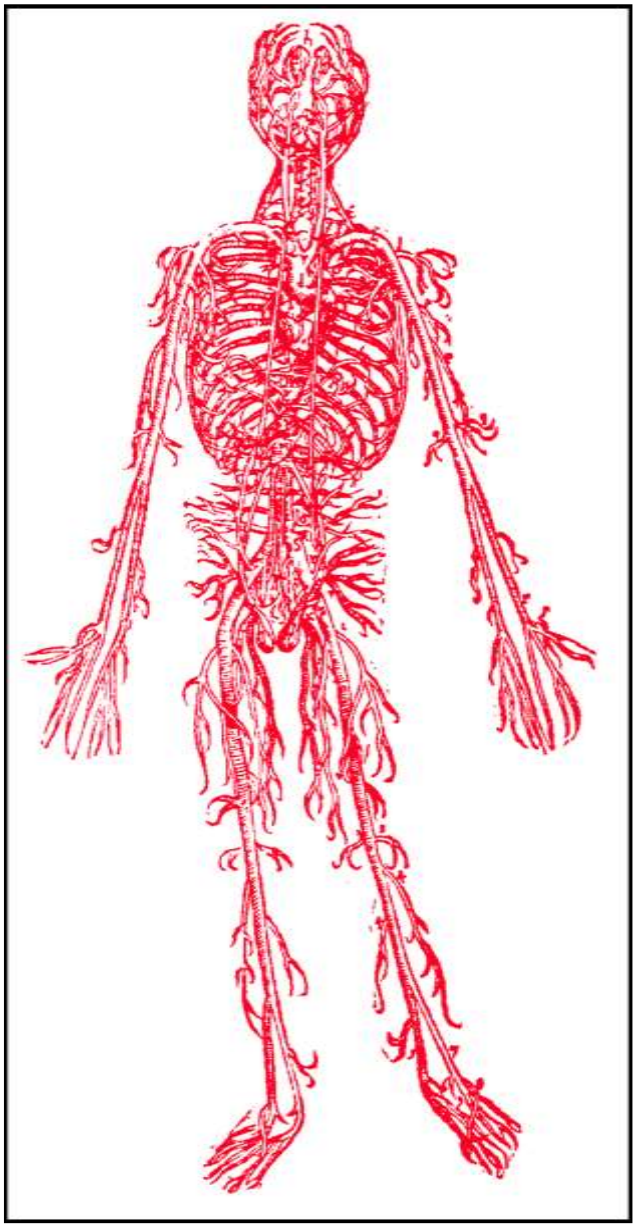

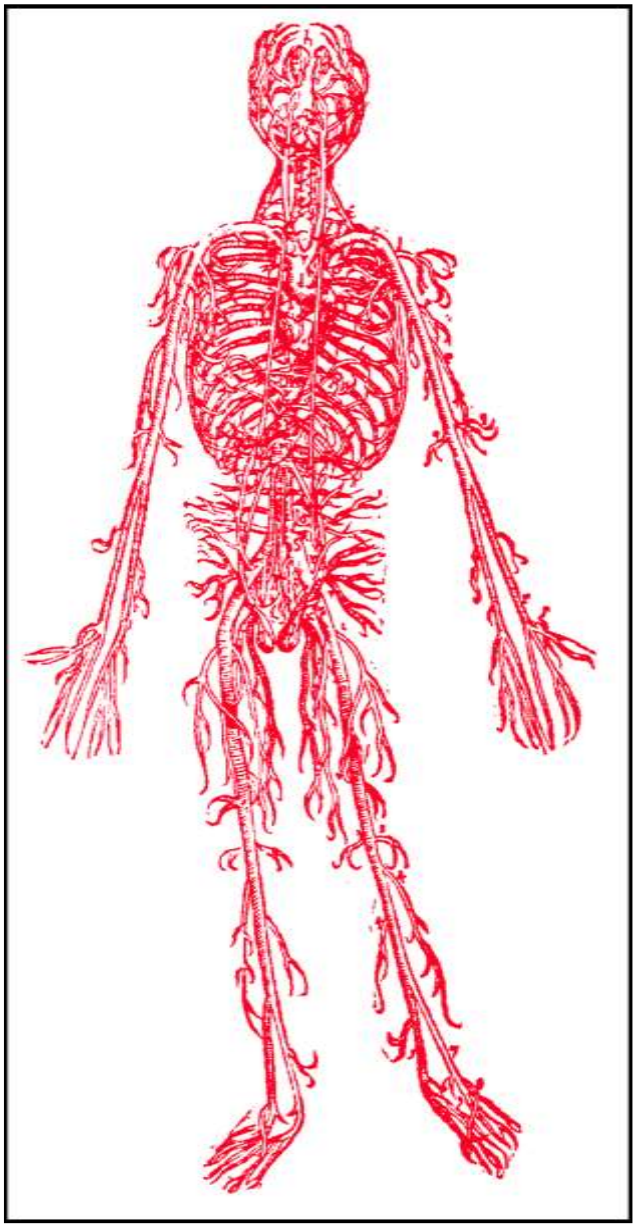

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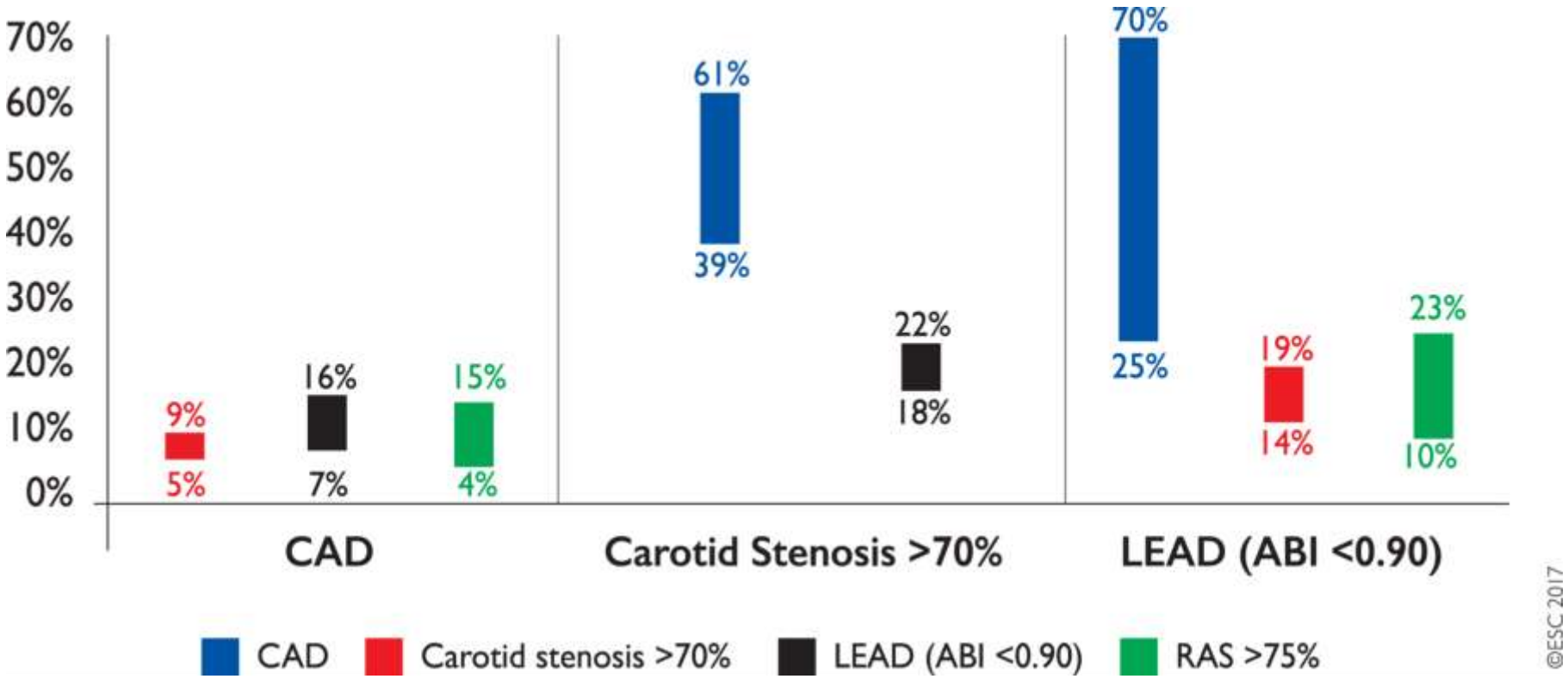


Aboyans et al., 2017 ESC Guidelines on PAD, Eur Heart J 2017

	Class[a]	Level[b]
In patients with LEAD, radial artery access is recommended as the first option for coronary angiography/intervention.[365]	I	C
In patients with LEAD undergoing CABG, sparing the autologous great saphenous vein for potential future use for surgical peripheral revascularization should be considered.	IIa	C
In patients undergoing CABG and requiring saphenous vein harvesting, screening for LEAD should be considered.	IIa	C
In patients with CAD, screening for LEAD by ABI measurement may be considered for risk stratification.[340,343,344,366–368,375–379]	IIb	B

Recommandations pour le screening et la prise en charge d'une association LEAD et CAD

Aboyans et al., 2017 ESC Guidelines on PAD, Eur Heart J 2017

CAD in patients undergoing vascular surgery of lower limbs

- In patients undergoing surgery for LEAD, the probability of significant concomitant CAD is ~50-60%.

- For the management of these patients, aortic and major vascular surgery are classified as ‘high risk’ for cardiac complications, with an expected 30-day MACE rate (cardiac death and MI) > 5%.

Aboyans et al., 2017 ESC Guidelines on PAD, Eur Heart J 2017

Table 3 **Surgical risk estimate according to type of surgery or intervention**[a,b]

Low-risk: <1%	Intermediate-risk: 1–5%	High-risk: >5%
• Superficial surgery • Breast • Dental • Endocrine: thyroid • Eye • Reconstructive • Carotid asymptomatic (CEA or CAS) • Gynaecology: minor • Orthopaedic: minor (meniscectomy) • Urological: minor (transurethral resection of the prostate)	• Intraperitoneal: splenectomy, hiatal hernia repair, cholecystectomy • Carotid symptomatic (CEA or CAS) • Peripheral arterial angioplasty • Endovascular aneurysm repair • Head and neck surgery • Neurological or orthopaedic: major (hip and spine surgery) • Urological or gynaecological: major • Renal transplant • Intra-thoracic: non-major	• Aortic and major vascular surgery • Open lower limb revascularization or amputation or thromboembolectomy • Duodeno-pancreatic surgery • Liver resection, bile duct surgery • Oesophagectomy • Repair of perforated bowel • Adrenal resection • Total cystectomy • Pneumonectomy • Pulmonary or liver transplant

CAS, carotid artery stenting; CEA, carotid endarterectomy. [a]Surgical risk estimate is a broad approximation of 30-day risk of cardiovascular death and myocardial infarction that takes into account only the specific surgical intervention without considering the patient's comorbidities. [b]Adapted from Glance *et al.*[11]

Kristensen et al., 2014 ESC/ESA Guidelines on non-cardiac surgery, Eur J Anaesthesiol 2014

Recommendations on preoperative evaluation

Recommendations	Class[a]	Level[b]	Ref.[c]
Selected patients with cardiac disease undergoing low- and intermediate-risk non-cardiac surgery may be referred by the anaesthesiologist for cardiological evaluation and medical optimisation.	IIb	C	

Kristensen et al., 2014 ESC/ESA Guidelines on non-cardiac surgery, Eur J Anaesthesiol 2014

Recommendations on cardiac risk stratification

Recommendations	Class[a]	Level[b]	Ref.[c]
Clinical risk indices are recommended to be used for perioperative risk stratification.	I	B	43, 44
The NSQIP model or the Lee risk index are recommended for cardiac perioperative risk stratification.	I	B	43, 44, 54
Assessment of cardiac troponins in high-risk patients, both before and 48–72 hours after major surgery, may be considered.	IIb	B	3, 48, 49
NT-proBNP and BNP measurements may be considered for obtaining independent prognostic information for perioperative and late cardiac events in high-risk patients.	IIb	B	52, 53, 55
Universal preoperative routine biomarker sampling for risk stratification and to prevent cardiac events is not recommended.	III	C	

BNP, B-type natriuretic peptide; NSQIP, National Surgical Quality Improvement Program; NT-proBNP, N-terminal pro-brain natriuretic peptide. [a]Class of recommendation. [b]Level of evidence. [c]Reference(s) supporting recommendations.

Kristensen et al., 2014 ESC/ESA Guidelines on non-cardiac surgery, Eur J Anaesthesiol 2014

Table 4 Clinical risk factors according to the revised cardiac risk index[43]

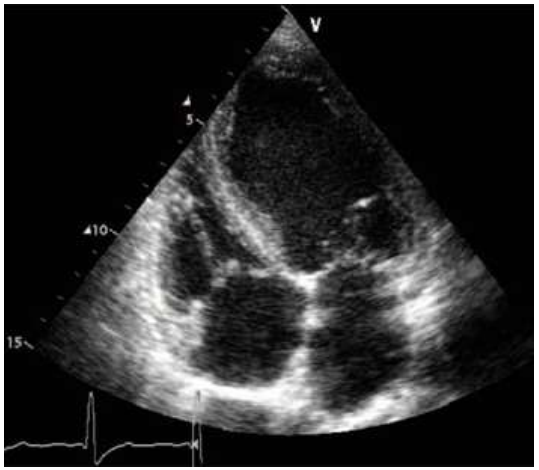
• Ischaemic heart disease (angina pectoris and/or previous myocardial infarction[a])
• Heart failure
• Stroke or transient ischaemic attack
• Renal dysfunction (serum creatinine >170 μmol/L or 2 mg/dL or a creatinine clearance of <60 mL/min/1.73 m^2)
• Diabetes mellitus requiring insulin therapy

Kristensen et al., 2014 ESC/ESA Guidelines on non-cardiac surgery, Eur J Anaesthesiol 2014

Recommendations on routine preoperative ECG

Recommendations	Class[a]	Level[b]	Ref.[c]
Preoperative ECG is recommended for patients who have risk factor(s)[d] and are scheduled for intermediate- or high-risk surgery.	I	C	57
Preoperative ECG may be considered for patients who have risk factor(s) and are scheduled for low-risk surgery.	IIb	C	
Preoperative ECG may be considered for patients who have no risk factors, are above 65 years of age, and are scheduled for intermediate-risk surgery.	IIb	C	
Routine Preoperative ECG is not recommended for patients who have no risk factors and are scheduled for low-risk surgery.	III	B	71

ECG, electrocardiography. [a]Class of recommendation. [b]Level of evidence. [c]Reference(s) supporting recommendations. [d]Clinical risk factors in Table 4.



Recommendations on resting echocardiography in asymptomatic patients without signs of cardiac disease or electrocardiographic abnormalities

Recommendations	Class[a]	Level[b]
Rest echocardiography may be considered in patients undergoing high-risk surgery.	IIb	C
Routine echocardiography is not recommended in patients undergoing intermediate- or low-risk surgery.	III	C

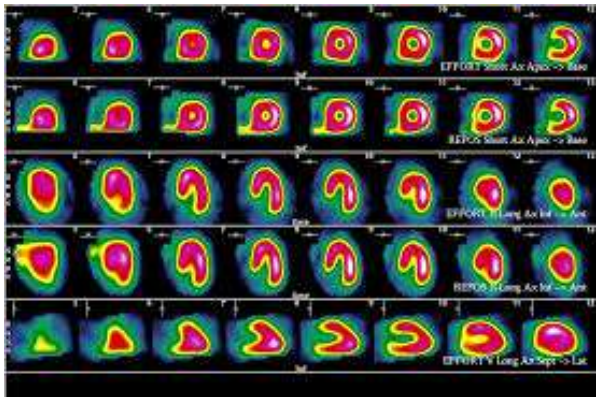
Kristensen et al., 2014 ESC/ESA Guidelines on non-cardiac surgery, Eur J Anaesthesiol 2014

Recommendations on imaging stress testing before surgery in asymptomatic patients

Recommendations	Class[a]	Level[b]
Imaging stress testing is recommended before high-risk surgery in patients with more than two clinical risk factors and poor functional capacity (<4 METs).[c]	I	C
Imaging stress testing may be considered before high- or intermediate-risk surgery in patients with one or two clinical risk factors and poor functional capacity (<4 METs).[c]	IIb	C
Imaging stress testing is not recommended before low-risk surgery, regardless of the patient's clinical risk.	III	C

Recommendation on PAD

Recommendation	Class[a]	Level[b]
Patients with PAD should be clinically assessed for ischaemic heart disease and, if more than two clinical risk factors (*Table 4*) are present, they should be considered for preoperative stress or imaging testing.	IIa	C



Kristensen et al., 2014 ESC/ESA Guidelines on non-cardiac surgery, Eur J Anaesthesiol 2014

Recommendations on preoperative coronary angiography

Recommendations	Class[a]	Level[b]	Ref.[c]
Indications for preoperative coronary angiography and revascularization are similar to those for the non-surgical setting.	I	C	56
Urgent angiography is recommended in patients with acute ST-segment elevation myocardial infarction requiring non-urgent, non-cardiac surgery.	I	A	75
Urgent or early invasive strategy is recommended in patients with NSTE-ACS requiring non-urgent, non-cardiac surgery according to risk assessment.	I	B	73
Preoperative angiography is recommended in patients with proven myocardial ischaemia and unstabilized chest pain (Canadian Cardiovascular Society Class III–IV) with adequate medical therapy requiring non-urgent, non-cardiac surgery.	I	C	56, 72

Kristensen et al., 2014 ESC/ESA Guidelines on non-cardiac surgery, Eur J Anaesthesiol 2014

Recommendations on timing of non-cardiac surgery in cardiac-stable/asymptomatic patients with previous revascularization

Recommendations	Class [a]	Level [b]	Ref. [c]
It is recommended that, except for high-risk patients, asymptomatic patients who have undergone CABG in the past 6 years be sent for non-urgent, non-cardiac surgery without angiographic evaluation.[d]	I	B	147, 148
Consideration should be given to performing non-urgent, non-cardiac surgery in patients with recent BMS implantation after a minimum of 4 weeks and ideally 3 months following the intervention.[d]	IIa	B	129
Consideration should be given to performing non-urgent, non-cardiac surgery in patients who have had recent DES implantation no sooner than 12 months following the intervention. This delay may be reduced to 6 months for the new-generation DES.[d]	IIa	B	149, 150
In patients who have had recent balloon angioplasty, surgeons should consider postponing non-cardiac surgery until at least 2 weeks after the intervention.	IIa	B	127, 151

BMS, bare-metal stent; CABG, coronary artery bypass graft surgery; DES, drug-eluting stent. [a]Class of recommendation. [b]Level of evidence. [c]Reference(s) supporting recommendations. [d]Aspirin to be continued throughout perioperative period.

Kristensen et al., 2014 ESC/ESA Guidelines on non-cardiac surgery, Eur J Anaesthesiol 2014

Recommendations for prophylactic revascularization in stable/ asymptomatic patients

Recommendations	Class[a]	Level[b]	Ref.[c]
Performance of myocardial revascularization is recommended according to the applicable guidelines for management in stable coronary artery disease.	I	B	56
Late revascularization after successful non-cardiac surgery should be considered, in accordance with ESC Guidelines on stable coronary artery disease.	I	C	
Prophylactic myocardial revascularization before high-risk surgery may be considered, depending on the extent of a stress-induced perfusion defect.	IIb	B	147
Routine prophylactic myocardial revascularization before low- and intermediate-risk surgery in patients with proven IHD is not recommended.	III	B	152

IHD, ischaemic heart disease. [a]Class of recommendation. [b]Level of evidence. [c]Reference(s) supporting recommendations.

Kristensen et al., 2014 ESC/ESA Guidelines on non-cardiac surgery, Eur J Anaesthesiol 2014

Recommendations on arterial hypertension

Recommendations	Class[a]	Level[b]	Ref.[c]
It is recommended that patients with a new diagnosis of hypertension pre-operatively be screened for end-organ damage and cardiovascular risk factors.	I	C	
Large perioperative fluctuations in blood pressure in hypertensive patients should be avoided.	IIa	B	187
Clinicians may consider *not* deferring non-cardiac surgery in patients with grade 1 or 2 hypertension (systolic blood pressure <180 mm Hg; diastolic blood pressure <110 mm Hg).	IIb	B	182

Kristensen et al., 2014 ESC/ESA Guidelines on non-cardiac surgery, Eur J Anaesthesiol 2014

Recommendations on heart failure

Recommendations	Class[a]	Level[b]	Ref.[c]
It is recommended that patients with established or suspected heart failure, and who are scheduled for non-cardiac intermediate or high-risk surgery, undergo evaluation of LV function with transthoracic echocardiography and/or assessment of natriuretic peptides, unless they have recently been assessed for these.	I	A	55, 165, 167, 175, 176
It is recommended that patients with established heart failure, who are scheduled for intermediate or high-risk non-cardiac surgery, be therapeutically optimized as necessary, using beta-blockers, ACEIs or ARBs, and mineralocorticoid antagonists and diuretics, according to ESC Guidelines for heart failure treatment.	I	A	159
In patients with newly diagnosed heart failure, it is recommended that intermediate- or high-risk surgery be deferred, preferably for at least 3 months after initiation of heart failure therapy, to allow time for therapy up-titration and possible improvement of LV function.	I	C	164
It is recommended that beta blockade be continued in heart failure patients throughout the perioperative period, whereas ACEIs/ARBs may be omitted on the morning of surgery, taking into consideration the patient's blood pressure. If ACEIs/ARBs are given, it is important to carefully monitor the patient's haemodynamic status and give appropriate volume replacement when necessary.	I	C	
Unless there is adequate time for dose-titration, initiation of high-dose beta-blockade before non-cardiac surgery in patients with heart failure is not recommended.	III	B	

ACEI, angiotensin converting enzyme inhibitor; ARB, angiotensin receptor blocker; ESC, European Society of Cardiology; LV, left ventricular. [a]Class of recommendation. [b]Level of evidence. [c]Reference(s) supporting recommendations.

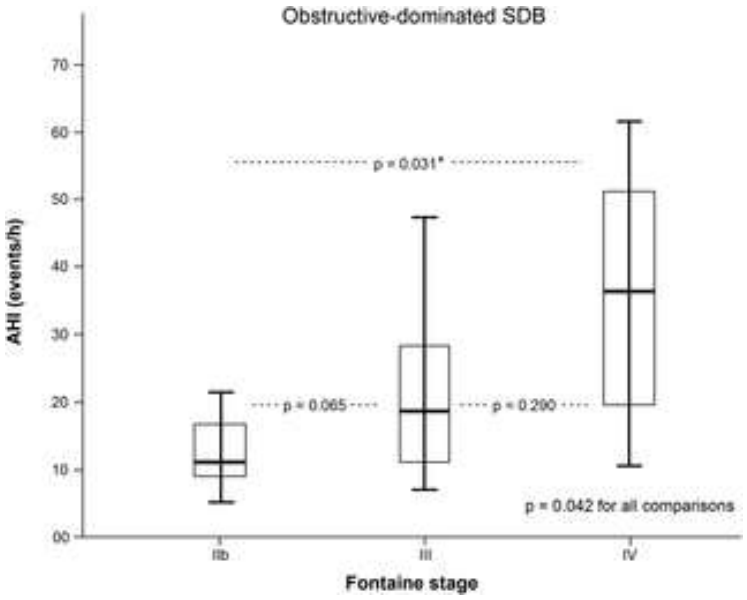
Kristensen et al., 2014 ESC/ESA Guidelines on non-cardiac surgery, Eur J Anaesthesiol 2014

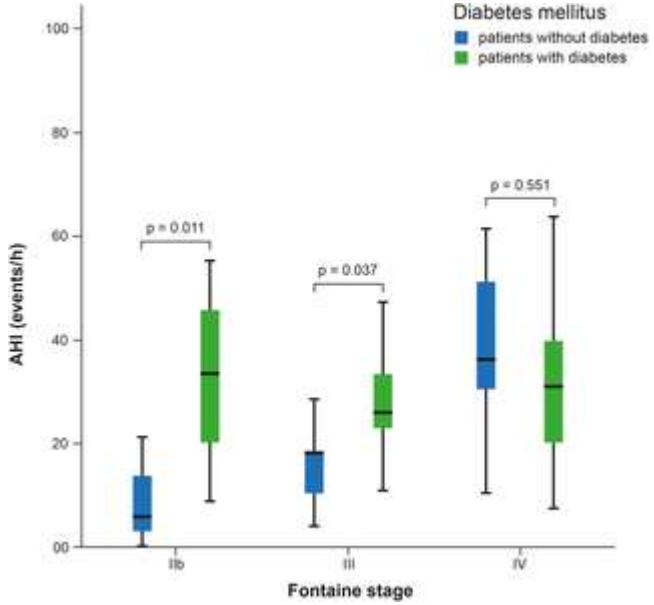
Recommendations on VHD

Recommendations	Class[a]	Level[b]	Ref.[c]
Clinical and echocardiographic evaluation is recommended in all patients with known or suspected VHD, who are scheduled for elective intermediate or high-risk non-cardiac surgery.	I	C	
Aortic valve replacement is recommended in symptomatic patients with severe aortic stenosis, who are scheduled for elective non-cardiac surgery, provided that they are not at high risk of an adverse outcome from valvular surgery.	I	B	69
Aortic valve replacement should be considered in asymptomatic patients with severe aortic stenosis, who are scheduled for elective high-risk non-cardiac surgery, provided that they are not at high risk of an adverse outcome from valvular surgery.	IIa	C	
Elective low or intermediate-risk non-cardiac surgery should be considered in asymptomatic patients with severe aortic stenosis if there has been no previous intervention on the aortic valve.	IIa	C	
In symptomatic patients with severe aortic stenosis who are scheduled for elective non-cardiac surgery, TAVI or balloon aortic valvuloplasty should be considered by the expert team if they are at high risk of an adverse outcome from valvular surgery.	IIa	C	
Elective non-cardiac surgery should be considered in patients with severe valvular regurgitation, who do not have severe heart failure or LV dysfunction.	IIa	C	
Percutaneous mitral commissurotomy should be considered in patients with severe mitral stenosis, who have symptoms of pulmonary hypertension and are scheduled for elective intermediate- or high-risk non-cardiac surgery.	IIa	C	

LV, left ventricular; TAVI, transcatheter aortic valve implantation; VHD, valvular heart disease. [a]Class of recommendation. [b]Level of evidence. [c]Reference(s) supporting recommendations.

Kristensen et al., 2014 ESC/ESA Guidelines on non-cardiac surgery, Eur J Anaesthesiol 2014





Schahab et al., PlosOne J 2017

Take home message

- La patient claudicant est un patient athéromateux
- Evaluer les FRCV et les autres territoires artériels
- Intérêt +++ de l'interrogatoire et de l'examen clinique
- Evaluer le terrain +++ : MCI, IC, AVC/AIT, I. rénale, diabète sous insuline
- Intérêt +++ de l'ECG
- Angioplastie : risque CV intermédiaire ; chirurgie : haut risque CV
- EDC selon terrain et type de revascularisation
- Recherche d'une IMS selon terrain et type de revascularisation
- Discuter d'une revascularisation coronaire avant chirurgie AOMI
- Peu d'intérêt (IC+) des biomarqueurs cardiaques avant revascularisation d'une AOMI

Merci!

Recommendations on the selection of surgical approach and its impact on risk

Recommendations	Class[a]	Level[b]	Ref.[c]
It is recommended that patients should undergo preoperative risk assessment independently of an open or laparoscopic surgical	I	C	26, 27, 35
In patients with lower extremity artery disease requiring revascularization, the best management strategy should be determined by an expert team considering anatomy, comorbidities, local availability, and expertise.	IIa	B	18

AAA, abdominal aortic aneurysm; EVAR, endovascular aortic reconstruction. [a]Class of recommendation. [b]Level of evidence. [c]Reference(s) supporting recommendations. [d]Since laparoscopic procedures demonstrate a cardiac stress similar to that of open procedures.

Kristensen et al., 2014 ESC/ESA Guidelines on non-cardiac surgery, Eur J Anaesthesiol 2014

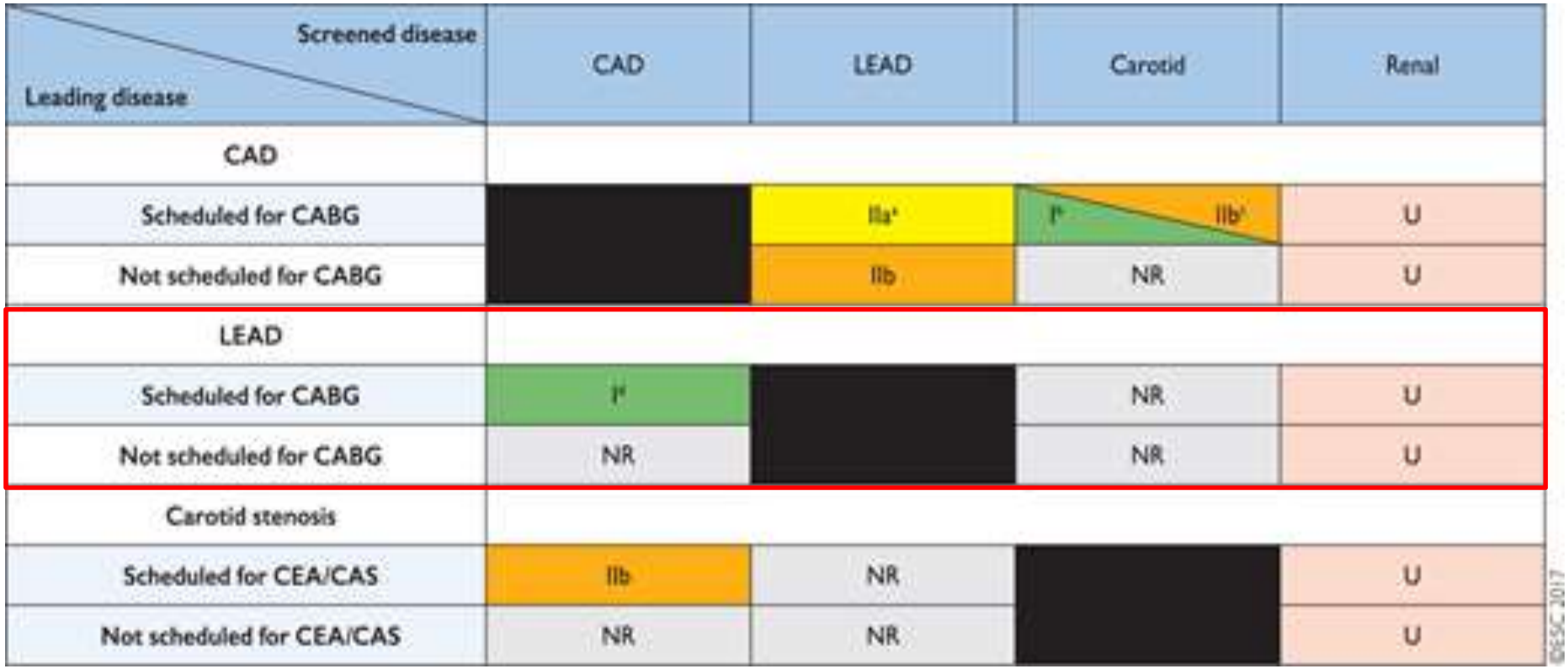
CAD in patients with LEAD not undergoing vascular surgery

- At least 1/3 of patients with LEAD have a history and/or ECG signs of CAD, while 2/3 have an abnormal stress test and up to 70% present at least single-vessel disease at coronary angiography.
- Prevalence of CAD is 2- to 4-fold higher in patients with LEAD vs. those without.
- There is no evidence that the presence of CAD directly influences limb outcomes in LEAD patients.
- The presence of CAD in patients with LEAD may require coronary revascularization, depending on the severity and urgency of LEAD symptoms.
- Risk factor modification and medical treatment recommended for CAD also apply to LEAD.
- Screening for CAD in LEAD patients may be useful for risk stratification, as morbidity and mortality are mainly cardiac. Non-invasive screening can be performed by stress testing or coronary CTA, but there is no evidence of improved outcomes in LEAD patients with systematic screening for CAD.

Aboyans et al., 2017 ESC Guidelines on PAD, Eur Heart J 2017

Recommendations	Class[a]	Level[b]
PADs and heart failure		
Full vascular assessment is indicated in all patients considered for heart transplantation or cardiac assist device implantation.	I	C
In patients with symptomatic PADs, screening for heart failure with TTE and/or natriuretic peptides assessment should be considered.	IIa	C
Screening for LEAD may be considered in patients with heart failure.	IIb	C
Testing for renal artery disease may be considered in patients with flash pulmonary oedema.	IIb	C
PADs and atrial fibrillation[c]		
In patients with LEAD and atrial fibrillation, oral anticoagulation:[83]		
• is recommended with a CHA_2DS_2-VASc score ≥2	I	A
• should be considered in all other patients.	IIa	B
PADs and valvular heart disease		
Screening for LEAD and UEAD is indicated in patients undergoing TAVI or other structural interventions requiring an arterial approach.	I	C

Aboyans et al., 2017 ESC Guidelines on PAD, Eur Heart J 2017



Leading disease \ Screened disease	CAD	LEAD	Carotid	Renal
CAD				
Scheduled for CABG		IIa*	I* / IIb*	U
Not scheduled for CABG		IIb	NR	U
LEAD				
Scheduled for CABG	I*		NR	U
Not scheduled for CABG	NR		NR	U
Carotid stenosis				
Scheduled for CEA/CAS	IIb	NR		U
Not scheduled for CEA/CAS	NR	NR		U

Aboyans et al., 2017 ESC Guidelines on PAD, Eur Heart J 2017