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

Specific diseases 2

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- Cerebrovascular disease
- Peripheral artery disease
- Pulmonary disease
- Congenital heart disease

Cerebrovascular disease

- cardiac surgery stroke rate 2–10%
- non-cardiac surgery lower incidence of perioperative stroke (0.1%)

- Perioperative strokes are mainly ischaemic and cardioembolic
- AF is often the underlying leading condition

Cerebrovascular disease

- To attenuate the risk of perioperative stroke, **antiplatelet/anticoagulant treatments should be continued whenever possible** throughout the perioperative period
- Adequate selection of the anaesthetic technique (regional vs. neuraxial vs. general anaesthesia)
- prevention and treatment of AF
- euglycaemic control
- blood pressure control

Cerebrovascular disease

- In patients with **symptomatic** carotid disease (i.e. with a stroke or TIA affecting the **corresponding vascular territory** in the preceding 6 months), carotid revascularization should performed first and non-cardiac surgery **postponed**.
- patients with carotid artery stenosis benefit from aggressive cardiovascular risk-factor modification to prevent perioperative myocardial ischaemia
- statins should be continued; whenever possible aspirin and beta-blockers should not be withdrawn

Recommendations on patients with suspected or established carotid artery disease

Recommendations	Class[a]	Level[b]
Pre-operative carotid artery and cerebral imaging are recommended in patients with a history of TIA or stroke in the preceding 6 months.	I	C
Pre-operative, routine carotid artery imaging may be considered in patients undergoing vascular surgery.	IIb	C
Whenever possible, continuation of anti-platelet and statin therapies should be considered throughout the peri-operative phase in patients with carotid artery disease.	IIa	C
For patients with carotid artery disease undergoing non-cardiac surgery, the same indications for carotid revascularization should apply as for the general population.	IIa	C
Pre-operative routine carotid artery imaging is not recommended in patients undergoing non-vascular surgery.	III	C

Peripheral artery disease

- Patients with PAD have a worse prognosis
- Even in patients without known CAD, peripheral artery surgery is associated with an increased incidence of perioperative acute myocardial infarction
- All patients with PAD should be treated with statins and platelet inhibitors according to guidelines
- It is not recommended that beta-blocker be routinely initiated pre-operatively unless there are other indications, such as HF or IHD

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 pre-operative stress or imaging testing.	IIa	C

Pulmonary disease

Recommendations on PAH and pulmonary diseases

Recommendations	Class[a]	Level[b]	Ref. [c]
It is recommended that patients with severe PAH, who are undergoing elective surgery, be managed in a centre with appropriate expertise.	I	C	217
It is recommended that interventions for high-risk patients with PAH be planned by the multidisciplinary pulmonary hypertension team.	I	C	217, 220
It is recommended that patients with PAH have an optimized treatment regimen before any non-emergency surgical intervention.	I	C	217
It is recommended that patients receiving PAH-specific treatment continue this in the pre-, peri-, and post-operative period without interruption.	I	C	217

In the case of progression of right heart failure in the post-operative period of patients with PAH, it is recommended that the diuretic dose be optimized and, if necessary, intravenous vasoactive drugs be initiated under the guidance of a physician experienced in the management of PAH.	I	C
In patients with COPD, smoking cessation (>2 months before surgery) is recommended before undertaking surgery.	I	C
In the case of severe right heart failure that is not responsive to supportive therapy, the temporary administration of pulmonary vasodilators (inhaled and/or intravenous) is recommended, under the guidance of a physician experienced in PAH.	I	C

Congenital heart disease

- risk will vary enormously, according to the degree of associated HF, PH, arrhythmias, and shunting of blood
- Prophylaxis for endocarditis should be initiated according to the ESC Guidelines

Recommendation on patients with congenital heart disease

Recommendation	Class[a]	Level[b]
It is recommended that, patients with complex congenital heart disease be referred for additional specialist investigation before undergoing elective non-cardiac surgery, if feasible.	I	C

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