

APPENDIX 4

ESC 2022 Guidelines on Non-cardiac Surgery.

Recommendations for thromboprophylaxis

Decisions about peri-operative thromboprophylaxis in NCS are based on individual and procedure-specific risk factors. I A

If thromboprophylaxis is deemed necessary, choose the type and duration of thromboprophylaxis (LMWH, NOAC, or fondaparinux) according to type of NCS, duration of immobilization, and patient-related factors. I A

In patients with a low bleeding risk, consider peri-operative thromboprophylaxis for a duration of up to 14 or 35 days, for total knee or hip arthroplasty, respectively. IIa A

NOACs in thromboprophylaxis dose as alternative treatments to LMWH after total knee and hip arthroplasty. IIb A

LMWH, low molecular weight heparin; NCS, non-cardiac surgery; NOAC, non-vitamin K oral anticoagulant.

Recommendations for peri-operative monitoring and anaesthesia

In order to preserve optimal CV stability, apply goal-directed haemodynamic therapy in patients undergoing high-risk NCS. I A

Avoid post-operative acute pain I B

In order to minimize the risk of post-operative organ dysfunction, avoid an intra-operative mean arterial pressure decrease of >20% from baseline values or <60–70 mmHg for ≥10 min I B

Non-aspirin NSAIDs as first-line analgesics in patients with established or high risk of CVD. III B

CV, cardiovascular; CVD, cardiovascular disease; NCS, non-cardiac surgery; NSAID, non-steroidal anti-inflammatory drug.

Recommendations for peri-operative cardiovascular complications

High awareness of peri-operative CV complications, combined with surveillance for PMI in patients undergoing intermediate- or high-risk NCS I B

Systematic PMI work-up to identify the underlying pathophysiology and define I B

therapy.

Treat post-operative STEMI, NSTEMI-ACS, acute HF, and tachyarrhythmias in accordance with guidelines for the non-surgical setting, after interdisciplinary discussion with the surgeon about bleeding risk. I C

In patients with post-operative PE of high or intermediate clinical probability, initiation of anticoagulation without delay, while diagnostic work-up is in progress, if bleeding risk is low I C

Post-operative oral anticoagulation for PE to be administered for a period of at least 3 months I C

In patients with a post-operative indication for OAC, NOAC over VKA I A

In patients with post-operative AF after NCS, long-term OAC therapy IIa B
In all patients at risk of stroke, considering the anticipated net clinical benefit of OAC therapy, and informed patient preferences.

In patients with MINS and at low risk of bleeding, treatment with dabigatran 110 mg orally b.i.d. from approximately 1 week after NCS. IIb B

Routine use of beta-blocker for the prevention of post-operative AF in patients undergoing NCS is not recommended. III B

AF, atrial fibrillation; b.i.d., twice a day; CV, cardiovascular; HF, heart failure; MI, myocardial infarction; MINS, myocardial injury following non-cardiac surgery; NCS, non-cardiac surgery; NOAC, non-vitamin K antagonist oral anticoagulant; NSTEMI-ACS, non-ST-elevation acute coronary syndrome; OAC, oral anticoagulant; PE, pulmonary embolism; PMI, peri-operative myocardial infarction/injury; STEMI, ST-segment elevation myocardial infarction; VKA, vitamin K antagonist.

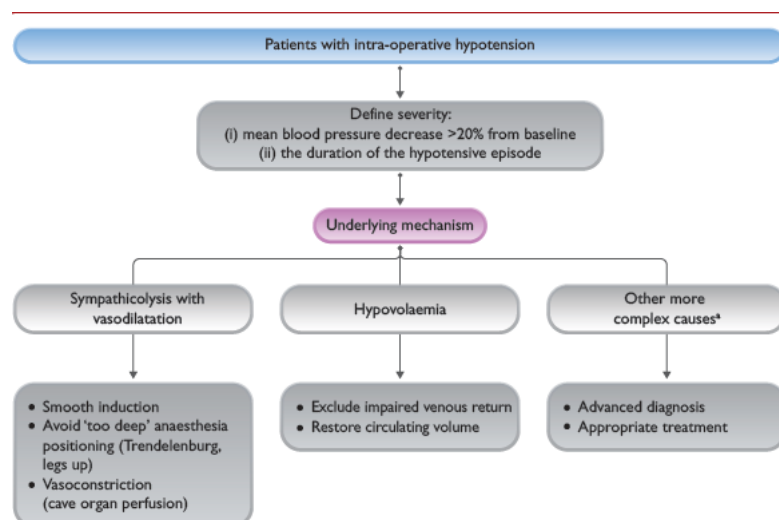


Figure 1. Pathophysiological approach to address intra-operative hypotension.
a E.g. peri-operative myocardial failure.

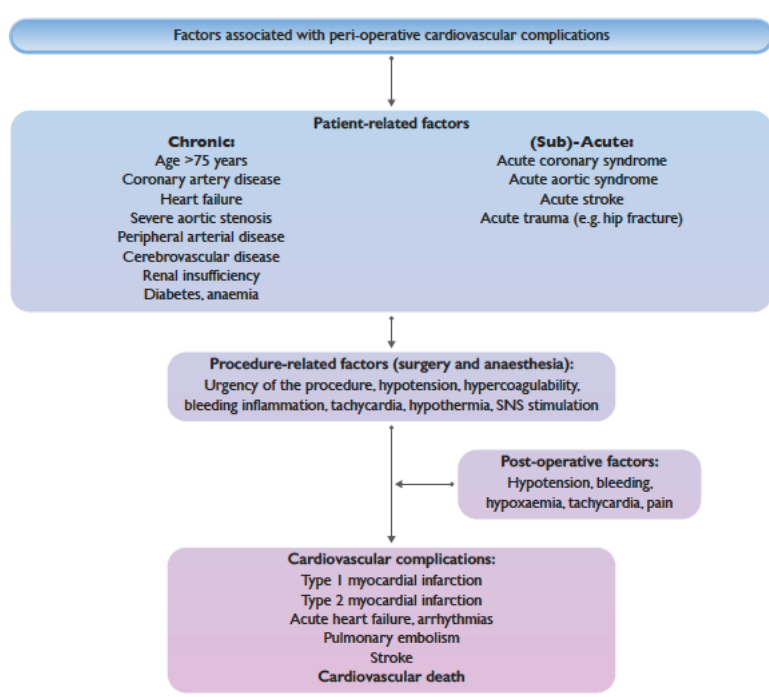


Figure 2. Factors associated with peri-operative cardiovascular complications.
SNS, sympathetic nervous system.