



KU LEUVEN



Guideline for pre-op evaluation by GP's
Guidelines of the Belgian Health Care Knowledge Center - KCE

prof. dr. Erik Vandermeulen
 University Hospitals Leuven
 dept. of anesthesiologie



General information

- Medical history
- Surgical history
- Family history
- Drug allergie(s) vs. drug intolerance(s)
- Drugs used
- Physical examination
 - Cardiac
 - Pulmonary
 - Neurological deficits
- Preoperative tests?

KU LEUVEN

ROUTINE PREOPERATIVE TESTING IN ADULTS UNDERGOING ELECTIVE NON-CARDIOTHORACIC SURGERY – 2017 KCE Report

- Revision of the 2004 guidelines
 - Based on the 2016 NICE (National Institute for Health and Care Excellence) and the 2014 ESA/European Society of Cardiology (ESC) guidelines
 - Own methodology used by KCE: GRADE system
 - Cardiothoracic and emergency surgery excluded
 - ASA class IV patients now included
- **Clinical benefit:** What is the clinical effectiveness of routinely using the test preoperatively vs. not using the test in improving patient outcomes in adults undergoing elective non-cardiothoracic surgery?
 - Are patients who receive this specific preoperative screening test doing better during and after surgery than patients who did not undergo this test?
- **Prognostic value:** Does an abnormal preoperative test predict prognosis in adults undergoing elective non-cardiothoracic surgery?
 - Can this test serve as a predictor of outcome during and after surgery?

KU LEUVEN

ASA-classification

- **ASA 1:** No organic pathology or patients in whom the pathological process is localized and does not cause any systemic disturbance or abnormality.
- **ASA 2:** A moderate but definite systemic disturbance. Examples: Mild diabetes. Functional capacity I or IIa.
- **ASA 3:** Severe systemic disturbance from any cause or causes. It is not possible to state an absolute measure of severity, as this is a matter of clinical judgment. Examples: Complicated or severe diabetes. Functional capacity IIb.
- **ASA 4:** Extreme systemic disorders which have already become an eminent threat to life regardless of the type of treatment. Because of their duration or nature there has already been damage to the organism that is irreversible. This class is intended to include only patients that are in an extremely poor physical state. There may not be much occasion to use this classification, but it should serve a purpose in separating the patient in very poor condition from others. Examples: Functional capacity III.
- **ASA 5:** Moribund patient with little chance of surviving
- **ASA 6:** Brain-dead organ donor
- **E:** Emergency operation Example: An ASA 1 patient having an emergent procedure would be ASA 1E

KU LEUVEN

“The surgical risk”

| Risk | Type of surgery |
|------------------------------------|---|
| High (Cardiac risk >5%) | Urgent, major surgery – especially in the elderly Aortic- and other major vascular surgery Peripheral vascular surgery Longlasting surgery with major fluidshifts/blood loss |
| Intermediate (Cardiac risk <5%) | Carotid endarterectomy Head and neck surgery Intraoperative on intrathoracic surgery Orthopaedics Prostate surgery |
| Low (Cardiac risk <1%) | Endoscopic surgery Superficial surgery Eye surgery Breast surgery |

(Fleisher LA et al. Circulation. 2009;120:e169-e276.)

KU LEUVEN

‘Cardiac risk indices’

- Revised Cardiac Risk Index (RCRI)
 - High risk surgery (intraoperative, intrathoracic, supra-inguinal vascular surgery)
 - Ischaemic heart disease (exception: Recent revascularisation)
 - Heart failure
 - CVA or TIA
 - Insulin-dependent diabetes mellitus
 - Serum creatinine > 2.0 mg/dl

| Class | Event rate % (95% CI) |
|-----------------------------|-----------------------|
| I (0 risk factors) | 0.4 (0.05-1.5) |
| II (1 risk factor) | 0.9 (0.3-2.1) |
| III (2 risk factors) | 6.6 (3.9-10.3) |
| IV (≥3 risk factors) | 11.0 (5.8-18.4) |

(Lee TH et al. Circulation 1999;100:1043-1049)

KU LEUVEN

Resting ECG

- KCE 2017:
 - There is no evidence comparing patients' outcomes with or without preoperative resting ECG
 - Evidence on the prognostic value shows that an abnormal preoperative ECG
 - left ventricular hypertrophy
 - bundle branch block
 - ST-depression
 -
 - is associated with an increased risk of perioperative cardiovascular events and mortality (OR = 2.814, 95%CI 1.36 to 5.82), BUT low to very low quality)
 - It is unclear from prognostic studies whether there was any impact on the decision to continue with surgery as planned, based on the test results
 - If surgery is delayed in order to optimize the cardiac function, there is a need to consider any potential consequences of delaying surgery

KU LEUVEN

Resting ECG

- KCE 2017:
 - In the absence of strong evidence, other evidence sources become informative too. Both the ESC/ESA and ACC/AHA guidelines contain recommendations about the use of a preoperative resting ECG, and are reasonably consistent and largely in line with the grid provided in the NICE 2016 guideline.

KU LEUVEN

Resting ECG

| ASA grade | Surgery grade | | |
|------------|---|---|---|
| | Minor | Intermediate | Major/complex |
| ASA 1 | Do not offer | Consider if >65y | Consider if >65y |
| ASA 2 | Consider if risk factors according to the revised cardiac risk index* | Offer if risk factors according to the revised cardiac risk index*; consider if >65y without risk factors | Offer if risk factors according to the revised cardiac risk index*; consider if >65y without risk factors |
| ASA 3 or 4 | Consider if risk factors according to the revised cardiac risk index* | Offer if risk factors according to the revised cardiac risk index*; consider if >65y without risk factors | Offer if risk factors according to the revised cardiac risk index*; consider if >65y without risk factors |

* Clinical risk factors according to revised cardiac risk index: ischaemic heart disease (angina pectoris and/or previous myocardial infarction), 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 m²), diabetes mellitus requiring insulin therapy

KU LEUVEN

Chest X-ray

- KCE 2017:
 - There is no evidence that a chest X-ray before surgery has an impact on clinical outcomes
 - Chest X-ray findings are poor predictors of postoperative complications and do not alter clinical practice
 - Chest X-rays involve exposure to a dose of radiation and are of questionable benefit in asymptomatic individuals, they are poor predictors of complications, do not change clinical practice and there is no evidence that they have any impact on outcomes

KU LEUVEN

Lung function tests and arterial blood gas analysis

- KCE 2017:
 - There is no evidence on the effect of lung function tests on clinical outcome
 - Evidence on prognostic value is limited and inconsistent (very limited prognostic evidence for two types of surgery bariatric surgery and gastric cancer surgery)
 - Physician aware of results prior to surgery?
 - Induce change of preoperative approach of the patient?

KU LEUVEN

Full blood count test

- KCE 2017
 - There is no evidence on the effect of full blood count tests on clinical outcome
 - Evidence of low to very low quality suggests that the **absence of anaemia is associated with lower rates of postoperative mortality** or complications
 - The evidence relating to platelet count (thrombocytopenia vs. thrombocytosis) is limited to one study of low quality

KU LEUVEN

Full blood count test

| ASA grade | Surgery grade | | |
|------------|---------------|--|---------------|
| | Minor | Intermediate | Major/complex |
| ASA 1 | Do not offer | Do not offer | Offer |
| ASA 2 | Do not offer | Do not offer | Offer |
| ASA 3 or 4 | Do not offer | Consider for patients with cardiovascular or renal disease if any symptoms not recently investigated | Offer |

KU LEUVEN

Kidney function tests

- KCE 2017
 - There is no evidence on the effect of kidney function tests on clinical outcome
 - Evidence of low to very low quality suggests that a normal eGFR (>60 ml/minute/1.73m²) is associated with lower rates of post- or perioperative mortality or post-surgical renal failure

KU LEUVEN

Kidney function tests

| ASA grade | Surgery grade | | |
|------------|---|---|---------------|
| | Minor | Intermediate | Major/complex |
| ASA 1 | Do not offer | Do not offer | Offer |
| ASA 2 | Consider in people in whom renal function impairment is suspected | Consider in people in whom renal function impairment is suspected | Offer |
| ASA 3 or 4 | Consider in people in whom renal function impairment is suspected | Offer | Offer |

KU LEUVEN

Haemostasis tests

- KCE 2017
 - There is no direct evidence that carrying out preoperative haemostasis tests would, or would not, improve health outcomes for patients
 - Evidence of low to very low quality suggests that an abnormal haemostasis test result is associated with a higher risk for postoperative mortality or major bleeding, although study results are conflicting
 - Patients suffering from chronic liver failure and/or with antecedent(s) of abnormal bleeding, either spontaneously or after trauma or surgery, also have an increased risk of bleeding and this may require monitoring prior to intermediate and major or complex surgery
 - When epidural anaesthesia is planned, routine haemostasis tests are not necessary, unless in people with antecedent(s) of abnormal bleeding, either spontaneously or after trauma or surgery, and in people with chronic liver disease having elective intermediate or major or complex non-cardiothoracic surgery

KU LEUVEN

Haemostasis tests

| ASA grade | Surgery grade | | |
|------------|---------------|---|---|
| | Minor | Intermediate | Major/complex |
| ASA 1 | Do not offer | Do not offer | Do not offer |
| ASA 2 | Do not offer | Do not offer | Do not offer |
| ASA 3 or 4 | Do not offer | Consider in people with chronic liver disease | Consider in people with chronic liver disease |

and/or with antecedent(s) of abnormal bleeding, either spontaneously or after trauma or surgery

KU LEUVEN

Liver function tests

- KCE 2017
 - There is insufficient evidence supporting routine (unselective) use of preoperative liver tests in asymptomatic patients

KU LEUVEN

