*Preoperative Period*

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Universal Protocol (at Advocate Health Care):

1. **Pre-verification** – patient’s identity, diagnosis, procedure name is verified multiple times, incl. in the presence of patient and during informed consent
2. **Site marking** (with surgeons initials)
3. **Time-out** – immediately before incision, all data\* is verified by participation of all OR team

\* patients identity, diagnosis, procedure name and side, correct patient’s position on table, presence of imaging data, presence of necessary instrumentation, implants, transfusion fluids

Patient + Site + Procedure

Preoperative Evaluation

* for emergency procedures, evaluation is rapid & limited.
* obtain formal **evaluation by internist**.
* **evaluation by anesthesiologist** – see 3905 p.

**I. History**:

* 1. Allergies, esp. prior use of anesthetics
	2. Bleeding abnormalities, risk factors for thromboembolism
	3. Cardiopulmonary symptoms.
	4. Infections
	5. Prior urinary retention / prostate surgery – only if indwelling catheter will be used.

**II. Physical examination**:

1. Areas affected by *surgical procedure*.
2. *Cardiopulmonary* system
3. Any signs of *ongoing infection* (e.g. upper respiratory tract, skin).
4. Any *cognitive dysfunction* (esp. in elderly) - may become more apparent postoperatively and, if undetected beforehand, may be misinterpreted as surgical complication.

**III. Laboratory evaluation**:

1. CBC
2. Urinalysis (glucose, protein, cells).
3. Blood biochemistry [electrolytes + creatinine + glucose] – unnecessary for extremely healthy patients with very low risk procedure.
4. Liver enzymes - depending on patient's history.
5. Recent chest X-ray (limited usefulness) - if general anesthetic is to be used.
6. Pulmonary function - for chronic pulmonary disorder.
7. Coronary tests (e.g. stress testing, coronary angiography) - for poorly controlled coronary artery disease.
8. Hemostasis tests
	* jei anamnezė ir obj. tyrimas patologijos nerodo – jos turbūt ir nėra – hemostazės tyrimų nereikia.
	* hemostazės tyrimas būtinas prieš:
		1. major surgery
		2. operacijas, kur net minimalus post-op kraujavimas gali būti labai pavojingas (ocular surgery, neurosurgery)
		3. bet kokią operaciją, jei įtariami hemostazės sutrikimai
	* hemostazės tyrimai:
		+ 1. bleeding time
			2. platelet count
			3. APTT
			4. prothrombin time, INR
			5. rutiniškai netaikoma – thrombin time, fibrinogen, factor XIII tests

Preoperative Measures

* incidental **infections** (e.g. UTIs) should be treated with antibiotics but should not delay surgery.

N.B. if prosthetic material is being implanted, patient should be free of infection before surgery!

* **fluid & electrolyte imbalance** should be corrected before surgery if possible (BP tends to fall when anesthesia is induced).
* **bowel preparation** (cleansing enemas / oral solutions, antibiotics) for certain GI procedures must be started 1-2 days before surgery.
* ***no oral intake*** after midnight night before surgery.
* ***stop smoking*** as early as possible before any procedure involving chest / abdomen (several weeks of smoking cessation are required for ciliary mechanisms to recover); incentive inspirometer is used before and after surgery.
* calorie & protein intake should be increased during perioperative period.

Preoperative Medications

– see also 3905 p.

* usually, **anesthesiologist** reviews patient's drugs and stipulates which ones should be taken on day of surgery.
* drugs (esp. cardiovascular drugs, including ***antihypertensives***) should be continued throughout perioperative period (oral drugs can be given with small sip of water on surgery day).
1. Preoperative chemoprophylaxis → see 2203, 2203a p.
2. ***Anticonvulsant*** levels are measured preoperatively.
3. Patients on ***antidiabetic*** drugs → see 2750 p.
4. Patients on ***chronic*** (> 3-6 months) ***glucocorticoids*** must receive perioperative steroid coverage:

for *minor* surgical stress – equivalent of 25 mg hydrocortisone on operative day;

for *moderate* surgical stress – 50-75 mg/d for 2 days;

for *major* surgical stress – 100-150 mg/d for 2-3 days.

1. ***Anticoagulants*** are stopped 5 days before surgery (→ heparin / low-molecular-weight heparin).
	* in certain circumstances (if procedure has low risk of bleeding), warfarin can be continued until 48 hours before surgery → low dose of vitamin K.
2. ***Antiplatelets***:
	* for aspirin, recommendation is normally to continue therapy!!!
	* for clopidogrel - stop 5-7 days before surgery.
3. **alcoholics** should be given prophylactic, ***long-acting benzodiazepines*** (e.g. chlordiazepoxide, diazepam, oxazepam) starting at admission.
4. **opioid addicts** may be given ***opioid analgesics*** to prevent withdrawal (may require larger doses); rarely, methadone is required to prevent withdrawal.

Surgical Risk

- depends on **procedure** and **patient risk factors**.

**I. Procedure** - risk is highest with heart / lung surgery, prostatectomy, major orthopedic procedures (e.g. hip replacement).

**II. Patient risk factors**:

* **older age** alone does not significantly increase risk of complication (but morbidity is greater if complication occurs) - older age is not absolute contraindication to surgery!
* **chronic disorders** (and associated morbidity) predict postoperative complications better than does age alone.
* unstable angina / recent MI / poorly controlled CHF dramatically increase surgical risk!
* undernutrition increases surgical risk (esp. serum albumin < 2.8 g/dL).
* obesity is unlikely to be correctable in time available.

Cardiac Risk Index in Noncardiac Surgery:

|  |  |  |
| --- | --- | --- |
| **Criteria** | **Finding** | **Points**\* |
| Age | > 70 yrs | 5 |
| Cardiac status | MI within 6 months | 10 |
| Ventricular gallop or jugular venous distention (signs of CHF) | 11 |
| Significant aortic stenosis | 3 |
| Arrhythmia other than sinus or premature atrial contractions | 7 |
| Premature ventricular contractions ≥ 5/min | 7 |
| General medical condition | Po2 < 60 mmHg, Pco2 > 50 mmHg, K < 3 mmol/L, HCO3 < 20 mmol/L, BUN > 50 mg/dL, serum creatinine > 3 mg/dL, elevated AST, chronic liver disorder, bedbound | 3 |
| Type of surgery needed | Emergency surgery | 4 |
| Intraperitoneal, intrathoracic, or aortic surgery | 3 |

\*Risk is based on total number of points:

Level I: 0–5 points

Level II: 6–12 points

Level III: 13–25 points

Level IV: > 25 points

*Panaudota literatūra*:

Merck 2005 (ch. 335)