Ambulatory Medication Management in the Perioperative Period

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|  | Medication/Medication Class | Pre-surgery Management | Post-surgery Management | Rationale |
| Cardiovascular | ACE inhibitors and angiotensin receptor blockers | Continue therapy up to day of surgery and hold morning dose unless indication is heart failure or poorly controlled hypertension. | Restart post-surgery when patient resumes oral intake unless hypotension present. Delayed resumption linked to increased mortality in HF patient linked to increased 30-day mortality in non-cardiac surgery1-2. | Continuation can result in hypotension3 |
| Non-statin lipid-lowering agents | Discontinue the day before surgery | Restart post-surgery when patient resumes oral intake | Surgery may increase risk of myopathy related to Niacin and fibrates. Bile acid sequestrants interfere with absorption of other medications. Disruption in perioperative state unlikely to change overall treatment outcome given long-term therapy.4  |
| Anti-platelets9 | Discontinue 7-10 days prior to elective, non-cardiac surgery. For cardiac surgery, consult cardiologist | Resume with oral intake | Increased risk of perioperative bleeding, however that must be balanced with perioperative cardiovascular risk. |
| Anticoagulants13 | Strategy depends on bleeding risk of procedure and clotting risk of the patient. Consult with surgeon.  | Consult with surgeon | Discontinuation increases thromboembolic risk and continuing increases perioperative bleeding. Many strategies for risk stratification are published.  |
| Diabetes | SGLT-2 Inhibitors | Discontinue 3-4 days before surgery | Resume with normal oral intake.  | Increased risk of UTI, hypovolemia, and potentially acute kidney injury and euglycemic DKA.5,8  |
| Insulin7,8 | *Basal/Long acting insulin:* Decrease dose evening before surgery by 10-25%70*/30 Insulin:* Decrease evening dose before surgery by 20% and morning dose before surgery by 50%*Rapid acting/meal time insulin:* Discontinue while NPO | Restart with oral intake, doses may need to be adjusted until normal diet resumes.  | Increased risk of hypoglycemia and hyperglycemia.  |
| Other oral DM medications8 | It is reasonable to not give other oral DM medications the morning of surgery.  | Restart with oral intake | Increased risk of hypoglycemia (sulfonylurea), alteration of gastric motility and post operative state (GLP-1, DPP-4), risk of drug accumulation in decreased renal perfusion (metformin) |
| Respiratory | Theophylline9 | Discontinue the evening before surgery | Resume with PO intake | Potential for serious arrhythmias and neurotoxicity if levels become supratherapeutic. Lack of evidence that continuation decreases pulmonary complications |
| Hormone Therapies | Post-menopausal Estrogen Therapy9 | *Low VTE risk procedure:* continue uninterrupted therapy *High VTE risk procedure:* discontinue at least 2 weeks prior to surgery | High VTE risk procedure: Resume when VTE risk has resolved | Continuation increases the risk of VTE |
| Selective Estrogen Receptor Modulator (Raloxifene, Tamoxifen)9 | *Low VTE risk procedure:* continue uninterrupted therapy *High VTE risk procedure:* Raloxifene: discontinue 3 days prior to surgery*Tamoxifen (for breast cancer prevention):* Discontinue 2 weeks prior to procedure*Tamoxifen (for breast cancer treatment):* continue uninterrupted with appropriate VTE prophylaxis | Resume when tolerating oral therapies and VTE risk has resolved | Continuation increases the risk of VTE |
|  | Oral Contraceptives9 | *Low VTE risk procedure:* continue uninterrupted therapy *High VTE risk procedure:* discontinue at least 4 weeks prior to surgery with alternate contraception and pregnancy test prior to surgery | Resume when tolerating oral therapies | Continuation increases the risk of VTE, however discontinuation increases risk of pregnancy. |
| Psychotropic Medications | Serotonin Reuptake Inhibtors (SSRI, SNRI)9 | Discontinue 3 weeks before surgery for high risk procedures  | Resume with oral intake | Increased risk of bleeding for some procedures. Likely safe in orthopedic, cardiac and plastic surgery. Intracranial procedures increase risk of bleeding.  |
| Lithium9 | Continue therapy with close monitoring of electrolytes and volume status | Resume with oral intake | Continuation may prolong the effect of muscle relaxants and, due to impaired renal concentrating ability, can cause hypovolemia and hypernatremia. |
| MAO-Inhibitors10  | Collaborate with surgeon and/or psychiatry to establish plan. If therapy will be discontinued, must be stopped 2 weeks prior to surgery.  | Resume with oral intake | Can result in severe hypertension with certain anesthesia agents.  |
| Herbal Medications11 | Various products | For simplicity, it is recommended to discontinue ALL herbal medications at least 1 week prior to surgery | Likely fine to resume with oral intake, consider if herbal therapy is indicated/beneficial.  | Known offending agents: *Ephedra:* Increased risk of myocardial infarction*Garlic:* Increased risk of bleeding*Ginkgo*: Increased risk of bleeding*Ginseng*: Lowers blood sugar and increasing risk of bleeding*Kava:* Increase sedative effect of anesthetics, associated with hepatotoxicity*St. Johns Wort:* Can diminish the effect some drugs via CYP 450 metabolism*Valerian:* Increase sedative effect of anesthetics*Echinacea:* Associated with allergic reactions and immune stimulation |
| Biologic Medication | Various products | Generally held prior to surgery and surgery planned for the end of the dosing cycle for that particular agent. Consult with treating provider | Restart when external wound healing is complete | Potential for increased surgical infection and delayed wound healing.  |
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