Whipple Care Pathway

PREOPERATIVE

Patient Education/Prehabilitation
Do not delay surgery > 4 weeks in order to achieve the below:
- Surgery goal/expectation setting
- Tobacco cessation
- Nutrition assessment and counseling
- Functional status and exercise guidance
- Cardiopulmonary testing1 as indicated
- Social work evaluation/screening if available (examples: PROMIS 10, PHQ-2, PHQ-9, SF-12)
- Education: home medications, incentive spirometer, pain management
- Consider weight loss counseling for BMI > 35 in elective non-cancer cases.
- Prehabilitation program when available

Preoperative Planning
- Anticipate discharge needs/care coordination
- Consult for patients on anti-coagulation to establish plan for peri-op anticoagulation1
- Schedule post-hospital visit. For cancer patients, coordinate with oncology1
- Imaging: CT with contrast or MRI with contrast within 60 days before surgery
- Tumor board/multidisciplinary discussion for cancer patients
- Social work evaluation if available (examples: PROMIS 10, PHQ-2, PHQ-9, SF-12)
- Education: home medications, incentive spirometer, pain management
- Consider weight loss counseling for BMI > 35 in elective non-cancer cases.

Labs
- COMP
- Pre-albumin
- CBC with differential
- INR
- PTT
- Type and Screen
- HbA1c for all patients
- Tumor markers as appropriate

Glycemic Control
- If HbA1C ≥ 6.5%: Consult to endocrinology or primary care for management for glycemic control
- If HbA1C ≥ 8% or glucose >250 mg/dL: Consult to endocrinology or primary care for management for glycemic control AND consider alternative surgery date if appropriate

IMMEDIATE PREOP

Shower
- Shower with soap or antiseptic agent on at least the night before surgery
- Provide product and clear instruction

Carbohydrate Loading
- Consider carb loading in all1 patients
- Examples: white grape juice, apple juice, clearfast, maltodextrin, Gatorade, Impact

Reduced Fasting
- Clear liquids up until 2 hours prior to surgery

Glycemic Control
- Check baseline glucose level on all patients in pre-op if not done in preop appointment

Prevention of PONV
- Screen all patients for PONV risk
- Administer antiemetic regimen based risk assessment score: Dexamethasone 4-8mg IV after induction, Ondansetron 4mg IV at end of surgery; diphenhydramine
- Risk Assessment Example:
  4 Primary Risk Factors: Female; Non-smoker; History or motion sickness; previous PONV; Expected administration of postoperative opioids.
  Score 1 for each applicable risk factor
  0-1 risk factors: Ondansetron 4mg 15min prior to end of case
  2 risk factors: Choose one or two agents listed below
  3 risk factors: Choose one or two agents listed below
  4 risk factors: Apply Scopolamine patch at least 2 hours before induction, Administer Dexamethasone 4-8mg IV after induction, Ondansetron 4mg IV at end of surgery; diphenhydramine

Multimodal Analgesia
- Administer ≥ 2 non-opioid analgesia strategies
- Epidural for those at risk for narcotic dependency2
- Regional (TAP/QL block)
- Acetaminophen
- Gabapentin
- Celebrex
- Review pain management plan before anesthesia induction

Appropriate IV Prophylactic Antibiotics
- Administer 15 to 60 minutes before incision
- MSQC Recommendation:
  Cefazolin 2 g IV; 3 g if ≥ 120 kg + Metronidazole 500 mg OR Cefoxitin 2 g OR Ceftriaxone/Flagyl or Cipro/Flagyl
- PCN allergy: Conduct thorough review of reported reaction to evaluate if alternative regimen necessary.
- Consider allergy testing to confirm.
- See ASHP guidelines in MSQC resources for other acceptable antibiotic regimens and beta-lactam alternatives
**INTRAOP**

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<th>VTE Prophylaxis</th>
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<th>Normothermia</th>
<th>Lung Protective Ventilation</th>
<th>Glycemic Control</th>
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<tr>
<td>-Within 2 hours before surgery:</td>
<td>-Use alcohol-based prep unless contraindicated</td>
<td>-Maintain core body temperature of 96.8°F (36°C)</td>
<td>-For patients with normal pulmonary function undergoing general anesthesia with endotracheal intubation, administer increased Fio2 during surgery and after extubation in the immediate postoperative period.</td>
<td>-DM: Check glucose every 1-2 hours</td>
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<td>-Heparin 5000 units OR Lovenox 40</td>
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<td>-Apply forced air warming</td>
<td>-To optimize tissue oxygen delivery, maintain perioperative normothermia and adequate volume replacement</td>
<td>-NDM: Consider at discretion of preop glucose/HbA1c</td>
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<td>-Place SCD's</td>
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<td>-Consider use of fluid warmer if duration of surgery is &gt;4 hours, or expected blood loss is &gt;500 ml, or expected fluid infusion is &gt;3 liters</td>
<td>-Goal &lt;180 mg/dL</td>
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<td>-Treat with subcutaneous rapid acting insulin or IV insulin infusion</td>
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**Euvolemia**
- Avoid excess fluid administration. Discuss restrictive fluid strategy/goal-directed fluid therapy with anesthesia (< 10 ml/kg/hr) 2
- Use balanced chloride-restricted crystalloid solution
- Minimize blood transfusion. Intraoperative transfusion only after discussion between anesthetic and surgical staff. If agreed, and unless there is major hemorrhage, transfuse 1 unit and assess. Target hemoglobin > 7 g/dL

**Multimodal Analgesia**
- Administer ≥2 non-opioid analgesia strategies
Examples:
- IV Lidocaine
- Wound infiltration with long-acting anesthetic at surgical site
- IV Ofirmev (acetaminophen) if not given preop
- Regional (TAP/QL block) if not done preop
- Ketamine
- Ketorolac at end of case

**Redosing of Antibiotics**
- Cefazolin: 4 hour interval
- Metronidazole: If operative time >8 hours consider redosing

**Drains**
- Foley
- For PJ (pancreaticojejunostomy), pull NG by POD 1
### Normothermia in PACU
- Maintain temperature >96.8°F (36°C) in PACU
- Utilize forced air warmer PRN

### Labs
- COMP
- CBC

### Incentive Spirometer
- Use 10x/hour while awake
- Wean supplemental O2 to SPO2 > 92%

### Minimize IV Fluids
- Minimize and discontinue fluids early as possible

### Early Ambulation
- Ambulation starting on POD 1
- Ambulate at least 3 times a day
- HOB at 30 degrees at all times

### Early Foley Removal
- Remove Foley on or before POD 2 in all patients without voiding difficulty
- Bladder scan if not voiding spontaneously p 6 hours. Straight cath x 2 for urinary retention > reinsert Foley and follow-up with Urology for male patients

### Early Alimentation
- Gum chewing POD 0
- Ice chips/sips < 8oz in 8hrs
- Goal: Regular diet by POD 3

### Multimodal Analgesia
- Use narcotic analgesics only if needed
- Administer ≥ 2 non-opioid analgesia strategies
  **Examples:**
  - Acetaminophen
  - Gabapentin
  - Ketorolac
  - Ibuprofen
  - IV Lidocaine

### Glycemic Control
- Goal: <180 mg/dL
- NDM patients with normoglycemia before or during surgery:
  - Check glucose on morning of POD1 before meal to monitor for stress-induced hyperglycemia
- NDM patients with elevated glucose before or during surgery:
  - Check glucose for 24-48 hours until at or below target goal
  - If elevated, IV insulin while NPO and basal-bolus insulin regimen once resuming oral nutrition.
  - Consult endocrinology or medicine for diabetic management.
- DM patients:
  - Standard glucose monitoring, Q6h
  - IV insulin while NPO and basal-bolus insulin regimen once oral nutrition resumed. Consult endocrinology or medicine for diabetic management.

### VTE Prophylaxis
- Heparin 5000 units subcutaneous TID or Lovenox 40 QD
- Lovenox for 28 days for cancer patients
- SCDs while in bed

### Discontinue Prophylactic IV Antibiotics
- Prophylaxis is typically not warranted past surgery end time (possible exception – biliary stents).
- If continued, duration should be no more than 24 hours past surgery end time unless otherwise indicated.

### Op Report Dictation:
- Be sure to document:
  - Pancreatic duct size in mm
  - Pancreas texture - hard/soft
  - Vascular reconstruction- venous/arterial/both
  - Presence of biliary stent
  - Neoadjuvant treatment

### Medications
- Perioperative PPI scheduled
- Diuretics as indicated
- Home meds- Resume when indicated
- Consider pancreatic enzymes supplements when indicated

### Patient Education
- Diet, dehydration
- Discharge planning
- Encourage clinic contact vs. ED presentation- provide with clinic phone number

### Discharge Criteria
1. Tolerating diet without nausea or has nutritional plan
2. Pain controlled with oral meds only

### POST-DISCHARGE

#### Contact Patient within 2 business days
- Make postop phone call to patients within 2 days of discharge

#### Clinic Visit within 2-6 weeks
- Clinic visit within 2-6 weeks of discharge, consider earlier visit
- Oncology within 12 weeks when indicated
- Utilize telemedicine or postop clinic for early follow up visit
Resources


