2018 Dynamic Practice Guidelines for Emergency General Surgery

Committee on Acute Care Surgery, Canadian Association of General Surgeons

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PRE-OPERATIVE PROPHYLAXIS

Dynamic Practice Guidelines for Emergency General Surgery

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PRE-OPERATIVE PROPHYLAXIS

Sub-Chapters:

Pre-operatively, there are a variety of prophylactic measures that can be taken to aid in effective management of emergency general surgery patients. Three areas are covered in this chapter including the following:

1. Surgical Site Infection (SSI) Prophylaxis
2. Venous-Thromboembolism (VTE) Prophylaxis
    a) Background of VTEs
    b) VTE Prophylaxis Practice Guideline
3. Gastrointestinal Ulcer Prophylaxis

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Surgical Site Infections (SSIs)

- One of the most common complications in emergency general surgery (EGS) patients
  - Approximately 6% of patients (overall)
  - Much higher in emergency colorectal procedures

- Contributes significantly to morbidity and mortality in this patient population, while increasing overall hospital and system costs

- Proposed prevention strategies
  - Wound protectors
  - Antibiotic prophylaxis

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Wound Protectors

- Wound protection devices are being increasingly used in the attempt to reduce infection rates especially in lower gastrointestinal surgery

- Use of wound protectors is **inexpensive**
  - Average cost per use: $100

- Effectiveness in reducing surgical site infections in lower GI surgical procedures is dependent on use of **single-ring versus. double-ring wound** protectors
  - Single-Ring: odds of SSI = 0.84
  - Double-Ring: odds of SSI = 0.35

Zhang L, Elsolh B, and Patel SV, 2018 Surg Endosc

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Antibiotic Prophylaxis

- Recommendations regarding **timing** suggest:
  - Antibiotics should be administered within 60 minutes before surgical incision

- **Dosing regimens** depends on the antibiotic choice and selection
  - Dosing is based on body weight
  - Re-dosed based on half-life of the antibiotic
  - See Table 1: Commonly used Antibiotics for SSI Prophylaxis
  - See Table 2: Common EGS Procedures and Recommendations

- Duration of antibiotics should be **less than 24 hours**

Bratzler DW, Dellinger EP, Olsen KM, et al., 2013 Am J Health Syst Pharm

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Commonly Used Antibiotics for SSI Prophylaxis

Antibiotic	Adult Dose	Route	Re-Dosing Interval
Cefazolin	< 80 kg – 1 g > 80 kg – 2 g	IV	q4h
Ceftriaxone	1-2 g	IV	NA
Clindamycin	900 mg	IV	q6h
Ciprofloxacin	400 mg 500 mg	IV PO	NA
Gentamicin‡	5 mg/kg	IV	NA
Metronidazole	500 mg	IV	q8h
Vancomycin†	15 mg/kg (Max 2g)	IV	q8h

‡Based on ideal body weight and administered over 30-60 minutes
†Based on total body weight and administered over 1 hour (< 1 g); 1.5 hours (<1.5 g) or 2 hours (< 2 g)

Table adapted from: Canadian Patient Safety Institute. SSI Getting Started Kit, 2014. Guidelines

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Common EGS Procedure and Recommendations

Surgery (Lap. or Open)	Recommended Agent	Alternative
Appendectomy	Cefazolin + Flagyl	Clindamycin OR Vancomycin + Gentamicin
Cholecystectomy	Cefazolin OR Ceftriaxone	Clindamycin OR Vancomycin + Gentamicin
Small Bowel Resection	Cefazolin + Flagyl	Clindamycin OR Vancomycin + Gentamicin
Large Bowel Resection	Cefazolin/ Ceftriaxone + Flagyl	Clindamycin OR Vancomycin + Gentamicin
Laparotomy	Cefazolin/ Ceftriaxone + Flagyl	Clindamycin OR Vancomycin + Gentamicin
Gastric/ Duodenal Perforation	Cefazolin	Clindamycin OR Vancomycin + Gentamicin

Table adapted from: Bratzler DW, Dellinger EP, Olsen KM, et al., 2013 Am J Health Syst Pharm

Venous Thromboembolism Prophylaxis

- One of the most preventable cause of morbidity and mortality with approximately 2.5% of EGS patients being diagnosed with a VTE event (see Rates of VTE following the 5 most common EGS operations below)
- EGS patients managed non-operatively represent ~50% of admissions
  - Limited data regarding risk of VTE

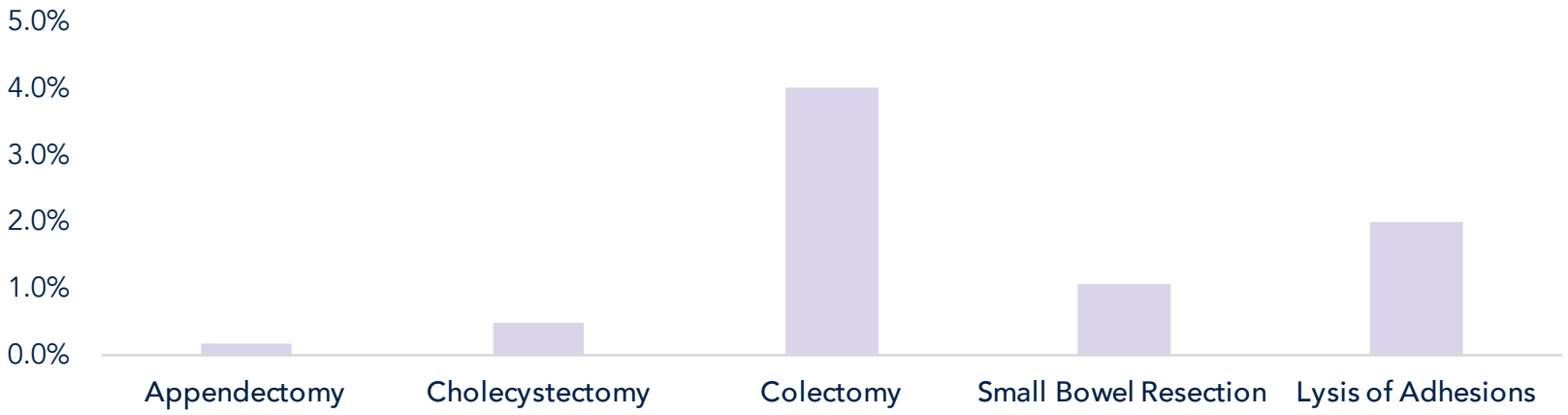

Figure based on unpublished data from ACS-NSQIP 2011-2014

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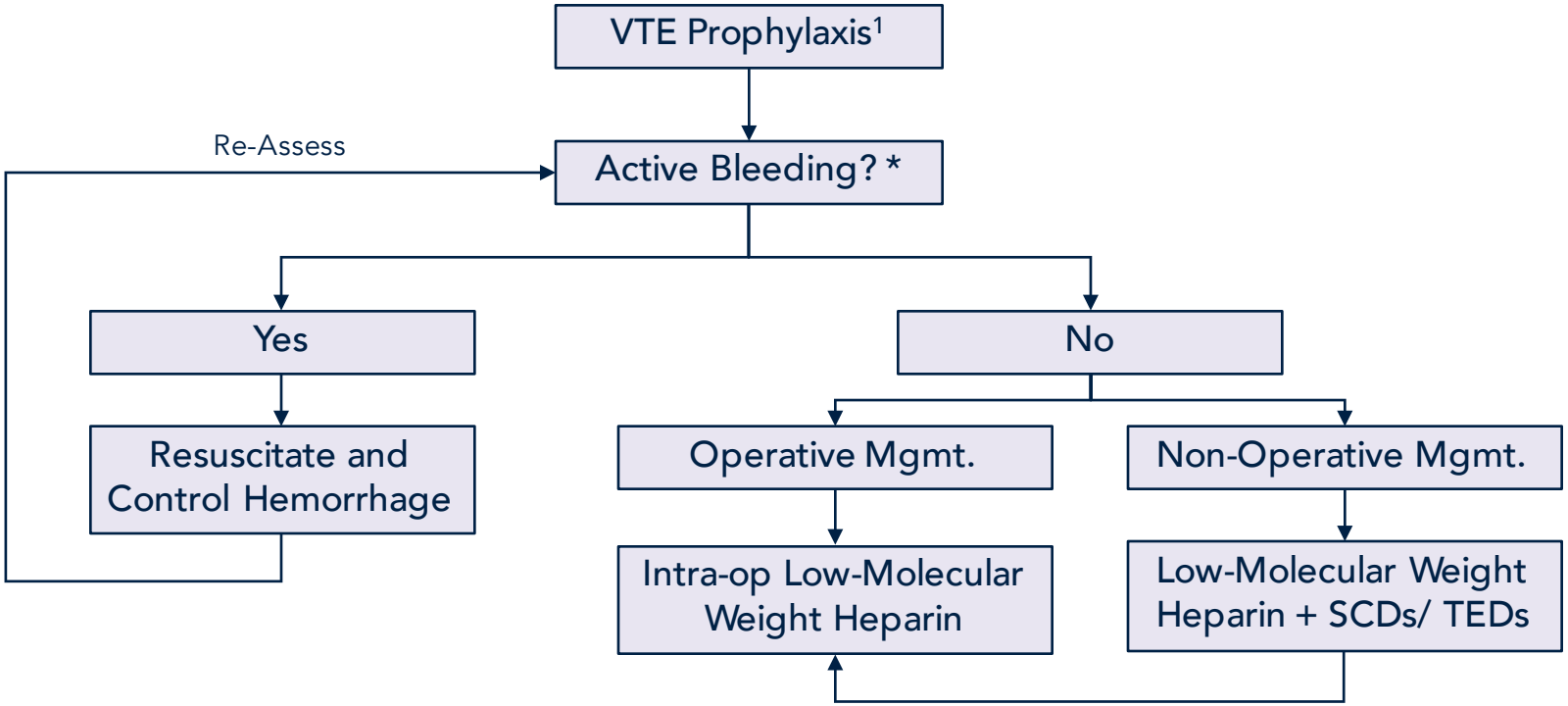
Venous Thromboembolism Prophylaxis



*Clinical/Radiographic evidence OR Hgb drop > 20 g/L
† LMWH depends on institution, and is weight based

[1]Canadian Patient Safety Institute. VTE Getting Started Kit, 2014. Guidelines

Gastrointestinal Ulcer Prophylaxis

- Not recommended for non-ICU patients
- However, for Intensive Care Unit patients, the following medications are indicate for prophylaxis against ulcer formation.
  - H2 Blocker
  - Proton Pump Inhibitor