Intra-abdominal Infections

Definitions

Uncomplicated: Involves source organ only, without anatomical dysfunction
Complicated: Extends beyond source organ causing peritonitis or abscess
Community-Acquired: Acquired outside of healthcare setting and no recent healthcare exposure
Healthcare-Associated: Acquired more than 48 hours post-admission OR after recent hospitalization or surgery

Duration

- Recommended duration of therapy assumes source control achieved soon after admission
- In the absence of source control, duration should be guided based on clinical improvement and follow-up imaging – consider consultation with Infectious Diseases

Clinical Considerations

- Empiric *Enterococcus* spp. coverage is recommended for patients with healthcare-associated IAI, particularly those with post-operative infection, those who have recently received cephalosporins (or other agents selecting for *Enterococcus* spp.), immunocompromised patients, and those with valvular heart disease or prosthetic intravascular materials
- Fluoroquinolones (e.g. ciprofloxacin) carry **high resistance rates** at Osler (**>20+%**) and **should not** be used empirically
- Empiric coverage for ESBL-producing pathogens is recommended for patients with a previous history of ESBL colonization
- Empiric fluconazole should be provided for healthcare-associated IAI, where yeast is identified in peritoneal samples

Antimicrobial Therapy

Indication	Common Pathogens	Antibiotic Therapy	Duration
Community-Acquired			
Uncomplicated *Non-perforated appendicitis* *Perforation without established infection*	Enterobacteriaceae Anaerobes Gram-positive cocci (If upper GI Tract perforation)	**First-line Therapy** Ceftriaxone 1 g IV q24h **PLUS** Metronidazole 500 mg IV/PO q12h **Beta-lactam anaphylaxis** Gentamicin‡ **PLUS** Metronidazole 500 mg IV/PO q12h	*Non-perforated appendicitis:* Pre-operatively only *Perforation without established infection:* 24 hrs (if operated on within 24 hrs)
Complicated *Perforated appendicitis* *Perforated diverticulitis*	Enterobacteriaceae Anaerobes	**First-line Therapy** Ceftriaxone 1 g IV q24h **PLUS** Metronidazole 500 mg IV/PO q12h **Beta-lactam anaphylaxis** Gentamicin‡ **PLUS** Metronidazole 500 mg IV/PO q12h	3 – 5 days* *Assumes source control procedure undertaken soon after admission.
Healthcare-Acquired			
Mild-to-Moderate Infections *Anastomotic leak* *Post-operative abscess* *Recent hospitalization*	Enterobacteriaceae (possibly drug resistant) Anaerobes +/- Enterococcus sp.	**First-line Therapy** Ceftriaxone 1 g IV q24h **PLUS** Metronidazole 500 mg IV/PO q12h **OR** Piperacillin-Tazobactam 4.5 g IV q8h **Beta-lactam anaphylaxis** Gentamicin‡ **PLUS** Metronidazole 500 mg IV/PO q12h	3 – 7 days (until clinical signs of resolution)
Severe Infections *Hospitalized for greater than 5 days* *Anastomotic leak* *Recent hospitalization*	Enterobacteriaceae (possibly drug resistant) Anaerobes Enterococcus sp.	**First-line Therapy** Piperacillin-tazobactam 4.5 g IV q6h **OR** Meropenem(R) 500 mg IV q6h **Beta-lactam anaphylaxis** Gentamicin‡ **PLUS** Vancomycin‡ **PLUS** Metronidazole 500 mg IV/PO q12h	3 – 7 days (until clinical signs of resolution)

Intra-abdominal Infections

Indication	Common Pathogens	Antibiotic Therapy	Duration
Biliary Tract			
Mild-to-Moderate Infections *Acute cholangitis* *Acute calculous cholecystitis*	Streptococci Enterobacteriaceae Anaerobes	**First-line Therapy** Ceftriaxone 1 g IV q24h **Beta-lactam anaphylaxis** Gentamicin‡	3 – 7 days (until clinical signs of resolution)
Severe Infections *Bilio-enteric anastomosis*	Enterobacteriaceae Enterococci	**First-line Therapy** Piperacillin-tazobactam 4.5 g IV q8h **Beta-lactam anaphylaxis** Gentamicin‡ **PLUS** Vancomycin‡ **PLUS** Metronidazole 500 mg IV/PO q12h	3 – 7 days (until clinical signs of resolution)
Spontaneous Bacterial Peritonitis			
Treatment	Enterobacteriaceae	**First-line Therapy** Ceftriaxone 2 g IV q24h **Beta-lactam anaphylaxis** Ertapenem 1 g IV q24h	5 days
Prophylaxis *Consider short-term prophylaxis for upper GI bleeding in patients with cirrhosis*	Enterobacteriaceae	**Short-Term** Ceftriaxone 1 g IV q24h	5 days
Consider long-term prophylaxis in patients with a history of SBP and those with a low total protein level in ascitic fluid		**Long-Term** Ciprofloxacin 500 mg PO q24h **OR** Sulfamethoxazole-trimethoprim 800 mg/160 mg PO q24h	

‡ See Osler dosing guide
(**R**) – This antimicrobial agent is **restricted**; Refer to Osler's antimicrobial restriction policies for more information