Doncaster and Bassetlaw Teaching Hospitals
NHS Foundation Trust

GASTRO-INTESTINAL TRACT INFECTIONS - ANTIMICROBIAL MANAGEMENT

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Contents

1. INTRODUCTION

Infections of the gastro-intestinal tract can occur as a result of a primary intra- abdominal septic condition (such as acute cholecystitis), as a complication of a general surgical procedure (post-op sepsis) or as a result of an enteric infection affecting the bowel (such as salmonella or campylobacter infection).

The management of patients with *Clostridium difficile* infections can be found in a separate policy (PAT IC 26. V7 Clostridium difficile)

2. ACUTE CHOLECYSTITIS AND CHOLANGITIS

An assessment should be made of the severity of the cholecystitis or cholangitis - at their most severe they may be accompanied by multi- organ dysfunction.

Any bile fluid which is aspirated or drained should be sent for culture

Antimicrobial Management

		ANTIBIOTIC	Oral switch	Course length	Comments
First line		Co-amoxiclav IV 1.2g tds	Co-amoxiclav 625mg tds	5 – 7 days depending on severity and progress Consider switch to oral at 48 – 72 hrs	* If renal function too poor for gentamicin use ciprofloxacin‡ 400mg IV bd ‡please refer to MHRA fluoroquinolone alert/guidance below
If >65 years **AND** has received co-amoxiclav or cephalosporins in the previous 2 weeks		Piperacillin/tazobactam IV 4.5g tds	De-escalate to appropriate po antibiotic based on cultures (or d/w Infection team)		
Penicillin allergy	non-anaphylaxis	Cefuroxime IV 1.5g tds	Cefalexin 500mg tds		
	anaphylaxis	*Gentamicin	Co-trimoxazole 960mg bd		

3. ACUTE DIVERTICULITIS

The aetiology of acute diverticulitis is not clear, but is likely to be an inflammatory process. Up to 25% of patients with diverticulosis (presence of diverticula in the colon) will develop diverticulitis. Most patients with diverticulitis will NOT require antibiotics and patients should be assessed for evidence of sepsis before commencing antibiotics.
Senior surgical review is required to determine the need for antimicrobial treatment

Antimicrobial Management

<table>
<tr><th colspan="2">UNCOMPLICATED</th><th colspan="4">ANTIBIOTIC</th></tr>
<tr><td colspan="2">First line</td><td colspan="4">Antibiotics not normally indicated.
Individual patient assessment required.</td></tr>
<tr><th colspan="2">COMPLICATED/SEPSIS</th><th>ANTIBIOTIC</th><th>Oral switch</th><th>Course length</th><th>Comments</th></tr>
<tr><td colspan="2">First line</td><td>Co-amoxiclav IV 1.2g tds</td><td>Co-amoxiclav 625mg tds</td><td rowspan="4">5 days dependent on clinical response

Consider switch to oral at 48 – 72 hrs</td><td rowspan="4">‡Please refer to MHRA fluoroquinolone alert/guidance below</td></tr>
<tr><td colspan="2">If >65 years AND has received co-amoxiclav or cephalosporins in the previous 2 weeks</td><td>Piperacillin/tazobactam IV 4.5g tds</td><td>De-escalate to appropriate po antibiotic based on cultures (or d/w Infection team)</td></tr>
<tr><td rowspan="2">Penicillin allergy</td><td>non-anaphylaxis</td><td>Cefuroxime IV 1.5g tds + metronidazole 500mg tds IV</td><td>Cefalexin 500mg tds + metronidazole 400mg tds</td></tr>
<tr><td>anaphylaxis</td><td>Mild/moderate infections: Co-trimoxazole IV 1.44g BD + metronidazole IV 500mg TDS

Severe infections:
‡Ciprofloxacin IV 400mg IV + metronidazole IV 500mg TDS</td><td>Co-trimoxazole 960mg bd + metronidazole 400mg tds</td></tr>
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4. ACUTE APPENDICITIS

- This is the commonest surgical cause of acute abdominal pain, caused by obstruction of the lumen of the appendix by faecoliths or lymphoid tissue. It may be complicated by perforation, leading to generalised peritonitis, or abscess formation.

- *Appendicectomy* is the definitive management and should be undertaken without delay, with appropriate prophylactic cover (see *Policy for Antimicrobial Prophylaxis for Surgical Procedures*).

- Pre-operative antibiotics should only be given if there is evidence of sepsis and/or complicated disease (peritonitis/abscess), in which case a treatment course of antibiotics is indicated.

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	ANTIBIOTIC
Macroscopically normal appendix with no evidence of infection	Prophylaxis only (see Prophylaxis Policy)
Complicated disease (sepsis, abscess, peritonitis)	See *Peritonitis and Complicated intra-abdominal infection* section

5. ACUTE PANCREATITIS

- Acute pancreatitis is an inflammatory rather than an infective condition and antibiotic treatment is not usually recommended.

- It is particularly important that the *underlying cause* of the pancreatitis is treated. Eradication of gallstones prevents the risk of recurrence and for an attack of mild acute pancreatitis early definitive surgery should be undertaken. If the pancreatitis is severe then cholecystectomy should be undertaken after resolution of pancreatitis.

- Infection of necrosis is the most serious local complication of pancreatitis but antibiotics are unlikely to affect the outcome in patients without extensive necrosis. Antibiotic treatment should be considered ONLY in patients with CT evidence of **more than 30% necrosis** of the pancreas **AND** persistence or deterioration of symptoms after 7 days of hospitalisation and in those with smaller areas of necrosis plus clinical suspicion of sepsis. In these cases see *Peritonitis and Complicated Intra-abdominal Infection* for antibiotic choice.

6. PERITONITIS AND COMPLICATED INTRA-ABDOMINAL INFECTION

This refers to both infection/sepsis resulting from a primary cause such as diverticulitis, or post-op sepsis following intra-abdominal surgery.
Imaging is required to exclude collections and samples are required from drainage sites or pus collections.

Antimicrobial management

		ANTIBIOTIC	Oral switch	Course length	Comments
First line		Co-amoxiclav IV 1.2g tds	Co-amoxiclav 625mg tds	5 days dependent on clinical response Consider switch to oral at 48 – 72 hrs	*If renal function too poor for gentamicin, replace the combination with ‡Ciprofloxacin IV 400mg bd + Metronidazole IV 500mg tds
If >65 years **AND** has received co-amoxiclav or cephalosporins in the previous 2 weeks		Piperacillin/tazobactam IV 4.5g tds	De-escalate to appropriate po antibiotic based on cultures (or d/w Infection team)		
Penicillin allergy	non-anaphylaxis	Cefuroxime IV 1.5g tds + metronidazole 500mg tds IV	Cefalexin 500mg tds + metronidazole 400mg tds		
	anaphylaxis	Gentamicin* + clindamycin 900mg qds IV	Co-trimoxazole 960mg po bd + metronidazole 400mg tds		

7. INFECTIOUS GASTROENTERITIS

Causative organisms include *Salmonella*, *Shigella*, *Campylobacter*, *E.coli O157*. These infections are self-limiting and rarely require antibiotics. Antibiotics are contra-indicated in *E. coli* O157 infection as they are likely to increase the risk of complications such as haemolytic-uraemic syndrome and some may prolong carriage of *Salmonella.* Patients causing concern should be discussed with the Infection Team.

8. LIVER ABSCESS

- Abscesses should be drained, (repeat aspirations may be required) and aspirates should be sent for culture to guide choice of antimicrobials.

- Imaging should be used to monitor resolution of abscess and to determine when antimicrobials can be stopped

Antimicrobial management

COMPLICATED/SEPSIS		ANTIBIOTIC	Oral switch	Course length	Comments
First line		Co-amoxiclav IV 1.2g tds	Co-amoxiclav 625mg tds	Minimum 4-6 weeks, with progress monitored by imaging.	**Antibiotics should be reviewed based on microbiology results**
If >65 years **AND** has received co-amoxiclav or cephalosporins in the previous 2 weeks		Piperacillin/tazobactam IV 4.5g tds	De-escalate to appropriate po antibiotic based on cultures (or d/w Infection team)		
Penicillin allergy	non-anaphylaxis	Cefuroxime IV 1.5g tds + metronidazole 500mg tds IV	Co-trimoxazole 960mg BD + metronidazole 400mg tds		
	anaphylaxis	IV Co-trimoxazole 1.44g BD + metronidazole 500mg tds IV			

9. SPONTANEOUS BACTERIAL PERITONITIS (SBP)

- This is ascitic fluid infection without a surgical intra-abdominal source. It usually occurs in patients with cirrhosis and ascites.

- Abdominal paracentesis – 10-20 mls of ascitic fluid should be placed into blood culture bottles and a universal container and sent urgently to the laboratory.
  >250 neutrophils/ml is diagnostic of SBP in the absence of a perforated viscus or inflammation of an intra-abdominal organ

- *Note – multiple organisms growing in ascitic fluid is suggestive of perforated bowel*

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TREATMENT		ANTIBIOTIC	Oral switch	Course length	Comments
First line		Co-amoxiclav IV 1.2g tds	Co-amoxiclav 625mg tds	5 days dependent on clinical response Consider switch to oral at 48 – 72 hrs	If ascitic fluid neutrophil counts do not fall by >25% by 48 hours of therapy then discuss alternative antibiotics with Infection doctor **Consider addition of metronidazole in severe disease or in suspected bowel perforation
If >65 years **AND** has received co-amoxiclav or cephalosporins in the previous 2 weeks		Piperacillin/ tazobactam IV 4.5g tds	De-escalate based on culture results or d/w Infection Consultant		
Penicillin allergy	non-anaphylaxis	**Cefuroxime IV 1.5g tds	Cefalexin 500mg tds		
	anaphylaxis	*Mild/moderate:* Co-trimoxazole IV 1.44g BD *Severe:* ‡Levofloxacin IV 500mg BD + Metronidazole IV 500mg TDS	De-escalate based on culture results or d/w Infection Consultant		

10. GUIDANCE FOR GENTAMICIN AND FLUOROQUINOLONE PRESCRIBING

a) * For **gentamicin dosing** see *"Extended interval gentamicin pathway"* guideline

b) ‡ **Fluoroquinolone warning**:

- Fluoroquinolones should not be used for mild-moderate infections, unless other antibiotics cannot be used.
- The European Medicines Agency's Pharmacovigilance Risk Assessment Committee has recommended restricting the use of fluoroquinolone antibiotics following a review of side effects mainly involving muscles, tendons, bones, nervous system and in those at high risk of aortic aneurysm.
- **Patients should be warned about these side effects, which are rare but can be disabling and potentially long-lasting.** A Patient Information Leaflet is available here.

Click here for further information.

11. REFERENCES

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5. Treat the Cause. A review of the quality of care provided to patients treated for acute pancreatitis. *National Confidential Enquiry into Patient Outcome and Death (2016)*"