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Gastrointestinal Infections Antibiotic Guidelines

Classification: Clinical Guideline
Lead Author: Antibiotic Steering Committee
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Who should read this document?

This policy applies to all clinical staff involved the prescribing of antimicrobials.

Key Practice Points

All clinical staff involved in the prescribing of antimicrobials to adhere to this policy including full documentation on EPMAR as detailed.

Background

Antimicrobial agents are among the most commonly prescribed drugs and account for 20% of the hospital pharmacy budget. Unfortunately, the benefits of antibiotics to individual patients are compromised by the development of bacterial drug resistance. Resistance is a natural and inevitable result of exposing bacteria to antimicrobials.

Good antimicrobial prescribing will help to reduce the rate at which antibiotic resistance emerges and spreads. It will also minimise the many side effects associated with antibiotic prescribing, such as Clostridium difficile infection. It should be borne in mind that antibiotics are not needed for simple coughs and colds. In some clinical situations, where infection is one of several possibilities and the patient is not showing signs of systemic sepsis, a wait and see approach to antibiotic prescribing is often justified while relevant cultures are performed.

This document provides treatment guidelines for the most common situations in which antibiotic treatment is required. The products and regimens listed here have been selected by the Trust's Medicines Management Group on the basis of published evidence. Doses assume a weight of 60-80kg with normal renal and hepatic function. Adjustments may be needed for the treatment of some patients.

This document provides treatment guidelines for the appropriate use of antibiotics. The recommendations that follow are for empirical therapy and do not cover all clinical circumstances. Alternative antimicrobial therapy may be needed in up to 20% of cases. Alternative recommendations will be made by the microbiologist in consultation with the clinical team.

This document refers to the treatment of adult patients (unless otherwise stated).

Refer to up to date BNF/SPC for information on interactions, side effects, cautions and contraindications for individual drugs.

In the case where an antibiotic prescription is necessary, probiotic therapy should be considered in order to reduce the risk of C. difficile infection.
What is new in this version?

- Community acquired intra-abdominal infections and biliary sepsis treatment switched to co-amoxiclav +/- gentamicin due to a national shortage in gentamicin.

Guideline

Peritonitis/Intra-Abdominal Sepsis

Antibiotics are indicated as an adjunct to surgical intervention. Please send BLOOD CULTURES prior to initiating antibiotics.

Initial treatment:
Co-amoxiclav 1.2g IV TDS +/- gentamicin IV stat*

*Co-amoxiclav has less gram–ve cover than gentamicin, so if your patient is septic or if you have any concerns about a patient’s response to therapy, please give a stat dose of gentamicin IV and discuss with the duty microbiologist.

Penicillin allergic patients:
vancomycin IV
plus
Ciprofloxacin 500mg orally BD or 400mg IV BD (if NBM)
plus
Metronidazole 400mg orally TDS or 500mg IV TDS

Treatment should be tailored once Culture & Sensitivity results are available.

Oral continuation treatment:
If needed, should be based on microbiological results available. If no results are available:
Co-amoxiclav 625mg TDS.

Duration:
Patients who have undergone a successful source-control procedure - 4 days.

Antibiotics may be stopped before the neutrophil count and CRP are normal if the source has been controlled.
When the source has not been controlled the duration will depend on clinical progress and size of any remaining collections. Senior review recommended after 7 days.
Antifungal treatment:

Antifungal treatment should be commenced if *Candida* is grown from intra-abdominal cultures.

Empiric choices are given below but these should be reviewed with further microbiology results and sensitivities.

*Non-severe infection with Candida albicans or if advised by microbiology*

Fluconazole IV/PO 400mg od
(use 400mg BD if on haemofiltration)

*Other Candida species, Severe Infection, Renal and haematology patients, patients on previous antifungal prophylaxis, and patients with a yeast positive blood culture:*

Anidulafungin 200mg on first day then 100mg OD

**Intra-Abdominal Sepsis – Hospital Acquired**

Antibiotics are indicated as an adjunct to surgical intervention.

*Initial treatment:*

Piperacillin/tazobactam 4.5g IV tds

Treatment should be tailored once C&S results are available.

*Oral continuation treatment:*

If needed, should be based on microbiological results available. If no results are available;

Co-amoxiclav 625mg TDS.

*Comment:*

1. Seek microbiology advice if the patient is allergic to penicillin or not responding to treatment.
2. Consider the possibility of MRSA infection, particularly if hospital acquired: Add **IV vancomycin**.

Antifungal treatment:

Antifungal treatment should be commenced if *Candida* is grown from intra-abdominal cultures

*First line:*

Fluconazole IV/PO 400mg od
(use 400mg BD if on haemofiltration)

*Renal and haematology patients, patients on previous antifungal prophylaxis, and patients with a yeast positive blood culture:*

Anidulafungin 200mg on first day then 100mg OD
**Spontaneous Bacterial Peritonitis (SBP)**

If SBP is suspected clinically, a routine diagnostic paracentesis should be carried out **before** commencing antibiotics.

Diagnosis is confirmed with an ascitic fluid absolute polymorphonuclear leucocyte (PMN) count ≥250 cells/mm$^3$ in the absence of an intra-abdominal source of infection or malignancy.

The term ‘bacterascites’ has been used to describe positive culture results of ascitic fluid in the absence of PMN count ≥250 cells/mm$^3$. In such cases, treatment may be considered according to clinical symptoms and signs.

**Differentiation of SBP from Secondary bacterial peritonitis:**

Due to the high mortality rate associated with secondary peritonitis, timely diagnosis and surgery are necessary. Parameters indicative of secondary peritonitis are neutrocytic ascitis with at least 2 of the following:
- ascitic total protein >1g/dL,
- glucose <50mg/dL,
- LDH>225mU/ml

**Urgent radiology and surgical review is required in these cases.**

**Initial Treatment of SBP:**

For patients with uncomplicated, community acquired SBP (e.g. no SIRs or renal failure), oral therapy is appropriate. See Oral continuation treatment below. Otherwise use:

Piperacillin/tazobactam 4.5g IV tds (bd if CrCl <20ml/min, CKD 5)

If penicillin allergy (not anaphylaxis) Ertapenem IV 1g od may be used.

**Oral continuation treatment (In the absence of positive microbiology):**

Co-amoxiclav 625mg TDS

If penicillin allergy; Ciprofloxacin 500mg BD

**Duration** – 5 days total antibiotics

**Prophylaxis of SBP:**

Secondary antimicrobial prophylaxis is recommended after resolution of SBP.

Primary antimicrobial prophylaxis is not recommended for all patients with low protein ascites (<1.5g/dL), but may be considered in the presence of severe liver disease (Child score ≥ 9 and serum bilirubin ≥ 3mg/dL) or renal impairment.
The decision to initiate prophylaxis should be made by a consultant gastroenterologist. Prophylaxis should be continued indefinitely.

First line:
Ciprofloxacin 500mg po once daily. (Reduce to 250mg po od if CrCl <10ml/min)

Second Line:
Co-trimoxazole 960mg po od. (480mg od if CrCl < 30ml/min. Not recommended if CrCl <15ml/min)

### Upper GI haemorrhage

- **Non-cirrhotic patients** – no antibiotic therapy required
- **Cirrhotic patients**

  *Initial Treatment:*
  Piperacillin/tazobactam 4.5g IV tds (bd if CrCl <20ml/min, CKD 5)

  If penicillin allergy (not anaphylaxis, or severe/immediate rash) Ertapenem IV 1g od may be used.

  *Oral continuation treatment:*
  Co-amoxiclav 625mg TDS

  If penicillin allergy Ciprofloxacin 500mg po twice daily.

  *Duration*
  Maximum 7 days

### Acute severe liver failure (e.g. paracetamol poisoning)

All cases to be discussed with a consultant hepatologist or Leeds transplant centre.
Decompensated cirrhosis with encephalopathy

Investigate and treat episodes of infection as per the relevant Antibiotic Guideline (e.g. SBP)

Synthetic disaccharides (lactulose) are currently the mainstay of therapy of hepatic encephalopathy.

First Line
Lactulose 30-50ml TDS adjusted to produce 2-3 loose stools daily.

Second Line (if intolerant of lactulose or lactulose ineffective).
Should only be prescribed by a consultant hepatologist.
Rifaximin 550mg orally BD (continue whilst patient remains encephalopathic).

Biliary Sepsis

- Cholecystitis should usually be managed surgically and antibiotics used only when there are signs of systemic infection or ascending cholangitis.
- Blood cultures should be taken before therapy is initiated.

Empiric Treatment

IV co-amoxiclav 1.2g TDS +/- gentamicin IV stat*

*Co-amoxiclav has less gram –ve cover than gentamicin, so if your patient is septic or if you have any concerns about a patient’s response to therapy, please give a stat dose of gentamicin IV and discuss with the duty microbiologist.

For Penicillin allergic patients
Ciprofloxacin 500mg orally BD or 400mg IV BD (if NBM)
Plus
Metronidazole 400mg orally TDS or 500mg IV TDS if biliary obstruction or emphysematous cholecystitis is suspected

Oral continuation treatment (Empiric/non-penicillin allergic patients)
Co-Amoxiclav 625mg TDS

Duration

5-7 days depending upon clinical progress
Acute Pancreatitis

Antibiotics are indicated if the patient has one or more of the following features of severe pancreatitis*:
- obesity (BMI >30)
- APACHE II >8 within 24h
- CRP >150 mg/L within 48h
- Ranson Score ≥ 3 within 48h
- Progressive or multiple organ failure
- >30% pancreatic necrosis demonstrated on contrast CT.

Ranson score for assessing the severity of acute pancreatitis

<table>
<thead>
<tr>
<th>Score one point for each of the following:</th>
<th>At Presentation</th>
<th>During first 48hrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age &gt;55yrs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glucose &gt;10mmol/L</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WBC &gt;16x10^9/L</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LDH &gt;350u/L</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AST &gt;120u/L</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Haematocrit decrease &gt;10%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Calcium &lt;2mmol/L</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Base deficit &gt;4mEq/L</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blood urea nitrogen increase &gt;1.8mmol/L</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fluid sequestration &gt;6L</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PaO₂ &lt;8kPa</td>
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<td></td>
</tr>
</tbody>
</table>

A Total score of ≥ 3 by 48hrs is indicative of Severe pancreatitis

Recommended prophylaxis
Meropenem 1g IV TDS (bd if CrCl <50ml/min, reduce to od if CrCl <10ml/min)

Duration of antibiotic therapy 10-14 days
Small bowel bacterial overgrowth

First Line:

Rifaximin 550mg orally BD (unlicensed indication)
Should only be prescribed with gastroenterologist/rheumatologist approval.

Duration: 7-10 days. Repeated monthly if required.

NB: As rifaximin has not been approved for use by the Greater Manchester Medicines Management group (GMMMG) for this or any other indication, patients requiring long term or repeated courses will be unlikely to get this prescribed in the community currently. This should be taken in to account before prescribing and alternative agents considered where appropriate.

Second Line:

If treatment with rifaximin is unsuccessful, discuss other options with a microbiologist.

Crohn’s Disease & pouchitis

Antibiotics have a modest benefit in the management of active colonic Crohn’s disease, but not in isolated small intestinal disease.

They may also be used in perianal Crohn’s disease and pouchitis.

Initial Treatment:
Metronidazole IV 500mg 8 hourly.

Oral Step down:
Metronidazole oral 400mg TDS
Rifaximin may be considered as an alternative (non-formulary: needs Individual Funding Request)

Ciprofloxacin oral 500mg BD may be added if severe acute bacterial gastroenteritis is suspected.

Duration:
Prescribe an initial course length of 7 days, but this may be extended up to 3 months on the advice of a Crohn’s specialist.
**Gastroenteritis**

Antibiotics are not usually indicated as most infections are self-limiting or non-bacterial.

Elderly patients or those with significant symptoms (> 9 to 10 stools per day, fever or need for hospital admission) with salmonella gastroenteritis, should be treated with ciprofloxacin 500mg bd for 5 days. Immunocompromised patients with salmonella gastroenteritis may need longer courses. Discuss with microbiology.

Although usually self-limiting, *Campylobacter* gastroenteritis may occasionally require treatment at the discretion of the clinician e.g. in the elderly, pregnant, immunocompromised, or those with severe or prolonged (>7 day) symptoms. Clarithromycin 500mg PO bd for 5 days is recommended.

**Standards**

- Document the Indication/rationale for antimicrobial therapy, including clinical criteria relevant to this.
- Review and document the patient’s allergy status
- Ensure the choice of antibiotic complies with the antibiotic guidelines and you have documented any clinical criteria relevant to the choice of agent.
- Document a management plan including a stop or review date.
- Where relevant, consider drainage of pus or surgical debridement/removal of foreign material.

**Explanation of terms**

CKD – Chronic Kidney Disease

CrCl – Creatinine Clearance (ml/min)

MRSA – Methicillin Resistant *Staph. aureus*.

PMN - Polymorphonuclear Leucocyte

SBP – Spontaneous Bacterial Peritonitis
References


Roles and responsibilities

All clinical staff involved in the prescribing of antimicrobials to adhere to this policy including full documentation on EPMAR as detailed.