EMPIRICAL ANTIBIOTIC TREATMENT OF INTRA-ABDOMINAL INFECTIONS

Infectious Diseases Unit
General Surgery Service
Anaesthesia Resuscitation Service

Cruces Hospital
2011 Edition

CLINICAL EVALUATION

Diagnosis of clinical symptoms

- Clinical examination
  - Markers:
    - Lactate: in the case of serious criteria
    - PCR: development marker, assessment of therapeutic failure and treatment duration

Type of infection

- Community
- Nosocomial or post-operation
- Relapsing or tertiary

Classification of the seriousness of infectious symptoms

- Light intra-abdominal infection: without sepsis criteria
- Light-moderate sepsis:
  - SIRS (systemic inflammatory response syndrome): two or more of the following symptoms:
    - Temp. > 38°C
    - Heart rate > 90 ppm
    - Respiratory rate > 20 rpm or PaCO2 < 32 mmHg
    - Leukocytes < 4,000 or > 12,000 or > 10% immature neutrophils

- Serious sepsis
  - 4 SIRS or APACHE signs > 15
  - 2 SIRS + organ failure/high blood pressure that requires vasoactive / lactate pharmaceuticals > 18 mg/dl

CRITICAL POINTS

- Early detection of patients with intra-abdominal infections that are developing towards serious infections.
- Starting the antibiotic treatment within the first hour of suspected or diagnosed intra-abdominal infection.
- In the case of serious infection, the antibiotic spectrum for Enterobacteriaceae must be as broad as possible.
- Surgery findings may reveal a more serious condition that was initially considered based on clinical data and may result in a change to the empirical antibiotic treatment.
- Depending on microbiological culture results, reassess the antibiotic and antifungal treatment: remove antimicrobials or reduce the antimicrobial spectrum.
- It is necessary to evaluate the treatment after 72 hours to identify patients who do not evolve satisfactorily and adapt their treatment.

TREATMENT DURATION

24 h
- Intestinal lesion due to penetrating trauma with <12 hours of development.
- Gastroduodenal and adjacent jejunum perforation, without antacid or chemotherapy treatment, with less than 24 hours of development.
- Appendicitis or cholecystitis without evidence of gangrene, perforation or abscess with early and effective intervention.

3 days
- Light-moderate infection, without poor development risk factors and appropriate focal point control.

5 days
- Serious infection in patients without septic shock, appropriate focal point control, recovery of intestinal functionality and reduced PCR ≥ 50% in terms of the values on the date of focal point control.

More than 5 days
- Serious infection that does not meet positive development criteria.

Bibliography:
Complicated Intra-abdominal Infection Guidelines. Clinical Infectious Diseases 2010; 50:133--64
Resistencia a los antimicrobianos en el Hospital de Cruces 2009. Microbiology Service.
ANTIFUNGAL 1st choice: FLUCONAZOLE
CASPOMET (poler candida) or AMPIREMICRIN until symptoms are stabilised or the arrival of cultures Septic shock
Prior treatment/prophylaxis with azoles
Neutropenic
Detection of Candida resistant to azoles (C. glabrata and C. krusei) in any culture, even if colonisation

IMIPENEM (1)
+ VANCYMYCIN / DAPTOMYCN (3)
+ ANTI Fungal (2)
+ TIGE CYCLINE
+ AMIKACINE
+ ANTI Fungal (2)

5 Treatment options for patients allergic to beta-lactams
(1) WHEN SHOULD WE REINFORCE ANTI-PSEU DOMONA TREATMENT (YEASTS)?
(2) WHEN SHOULD WE SUSPECT FUNGUS INFECTION (YEASTS)?
(3) WHEN SHOULD WE SUSPECT ENTEROCoccus INFECTION sp. RESISTANT TO BETA-LACTAMS?

1) WHEN SHOULD WE REINFORCE ANTI-PSEU DOMONA TREATMENT?
Associate AMIKACINE or COLISTIN:
- Septic shock
- Intra-abdominal nosocomial infection and prior antibiotic treatment
- Neutropenia
- Serious biliopancreatic-origin infection with prior manipulation of the biliary duct

2) WHEN SHOULD WE SUSPECT FUNGUS INFECTION (YEASTS)?
- Post-operation intra-abdominal infection with gastrointestinal or biliopancreatic focal point
- In Gram of peritoneal fluid
- Candida score of ≥ 3 points: Parenteral nutrition
- Surgery before UCI 1
- Multifocal colonisation 1
- Serious sepsis 2

3) WHEN SHOULD WE SUSPECT ENTEROCoccus INFECTION sp. RESISTANT TO BETA-LACTAMS?
- Immunosuppressed/ recipients of solid organ transplants
- Intra-abdominal rescue treatment (especially if the patient has received cephalosporins before). Patients with valvular heart disease, endovascular material or other endocarditis risk factors
- Serious intra-abdominal infection with a colonic or post-operation or biliary origin associated to healthcare treatments

POOR DEVELOPMENT RISK FACTORS

<table>
<thead>
<tr>
<th>Poor development risk factors</th>
<th>WHEN SHOULD WE SUSPECT ENTEROBACTERIAS BLEE//AMPc?</th>
</tr>
</thead>
<tbody>
<tr>
<td>depending on the seriousness of the infection</td>
<td>Hemodialysis 24 hour delay in controlling the focal point</td>
</tr>
<tr>
<td>according to comorbidity</td>
<td>Immuno depression, malnutrition, diabetes, chronic kidney failure, COPD, hepatic cirrhosis, hepatis</td>
</tr>
<tr>
<td>according to age</td>
<td>&lt; 65 years</td>
</tr>
<tr>
<td>according to all suitability</td>
<td>Risk of infection due to resistant germs: Enterobacteriaces BLEE, Pseudomonas spp., Enteroccocus sp., Candida sp.</td>
</tr>
<tr>
<td>according to the type of infection</td>
<td>Peritonitis fecoidal, biliopancreatic focal point with recent manipulation of the biliary duct</td>
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Healthcare field | Hospital stay of more than 15 days |
<table>
<thead>
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<tbody>
<tr>
<td>Comorbidity</td>
<td>Kidney transplantation, CRI</td>
</tr>
<tr>
<td>Invasive procedures</td>
<td>Nasogastric probe, therapeutic endoscopy</td>
</tr>
<tr>
<td>Prior antibiotic treatment in the last three days</td>
<td>* cep. antibiotycyest, quinolones, carbapenems, B-lactamase with beta lactamase inhib.</td>
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</tbody>
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Type of Infection | IAA Community | IAA Nosocomial |
<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>Classification of seriousness</td>
<td>Light-moderate</td>
<td>Serious</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Type of Infection</th>
<th>IAA Post-operation</th>
<th>IAA Relapasing Persistent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ceftriaxone+Metronidazole</td>
<td>** Gentamicin+Metronidazole</td>
<td>IMIPENEM (1)</td>
</tr>
<tr>
<td>Piperacillin-Tazobactam</td>
<td>Tigecycline (1)</td>
<td>+ Antifungal (2)</td>
</tr>
<tr>
<td>With poor development risk factors</td>
<td>or Suspected BLEE</td>
<td>+ Tigecycline</td>
</tr>
<tr>
<td>Ertapenem</td>
<td>Tigecycline</td>
<td>+ Amikacine</td>
</tr>
<tr>
<td>+ Antifungal (2)</td>
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