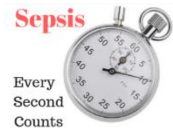
United Lincolnshire Hospitals
NHS Trust

SEPSIS

Antimicrobial message of the month

August 2020

SEPSIS is the presentation of overwhelming infection in the body. It is a MEDICAL EMERGENCY. If not treated immediately, sepsis can result in organ failure and death. Inappropriate choice of antibiotics in these crucial situations can cost lives.



Incident relating to inappropriate antibiotics given for Sepsis

RECENT INCIDENT - A patient in A&E with true penicillin allergy recevied Clarithromycin instead of the ULHT 3rd line treatment (Vancomycin+ Metronidazole+Ciprofloxacin) for red flag sepsis of unknown source.

Clarithromycin was not a good choice as it does not cover many of the potential infecting organisms that may be causing sepsis. The patient deteriorated further and required intensive care. It is very likely this was due to inadequate antibiotic choice.

Correct Antibiotic Treatment for Sepsis of Unknown source

Before prescribing antibiotics, adequate cultures and relevant samples should be taken where possible. These will help guide further treatment decisions

Refer to the **ULHT antimicrobial guidelines** for most appropriate antibiotic choice!

Management of SEPSIS of unknown source in Adult Patients

BEFORE PRESCRIBING ANTIMICROBIALS, ADEQUATE CULTURES AND RELEVANT SAMPLES SHOULD BE TAKEN WHERE POSSIBLE.
ALSO TAKE INTO ACCOUNT:
Drug allergies & sensitivities | Drug-drug and –food interactions | Contraindications | Recent antibiotic use | Clostridium *difficile* risk | Ideal Body Weight (IBW) | Renal Function | Hepatic Function | Past Medical History

PIPERACILLIN/TAZOBACTAM AND MEROPENEM ARE HEAVILY RESTRICTED ANTIBIOTICS.
ANY USE OUTSIDE THE ANTIBIOTIC FORMULARY REQUIRES MICROBIOLOGY APPROVAL WITHIN 24 HOURS OF INITIATION.

AMBER FLAG (Simple Sepsis)

First Line: **Co-amoxiclav** 1.2g iv 8 hourly **+/- gentamicin** stat (5mg/kg actual body weight, max 400mg)

Second Line (Minor penicillin rash): **Cefuroxime** 1.5g iv 8 hourly **plus metronidazole** 500mg iv 8 hourly **plus gentamicin** daily (5mg/kg actual body weight, max 400mg, but see antimicrobial guidelines for exclusions).

Third Line (Severe Beta-lactam allergy): **Vancomycin** iv (dose as per antimicrobial guidelines) **plus metronidazole** 500mg iv 8 hourly **plus ciprofloxacin** 500mg po 12 hourly (400mg iv every 12 hours)

Duration: Review in 24-48 hours when origin of infection determined, or isolate and sensitivity known

RED FLAG (Severe Sepsis)

First Line: **Piperacillin/tazobactam** 4.5g iv 8 hourly

Second Line (Minor penicillin rash): **Meropenem** 2g iv every 8 hours

Third Line (Severe Beta-lactam allergy): **Vancomycin** iv (dose as per antimicrobial guidelines) **plus metronidazole** 500mg iv 8 hourly **plus ciprofloxacin** 500mg po 12 hourly (or 400mg 12 hourly, if oral route not available)

Duration: Review in 24-48 hours when origin of infection determined, or isolate and sensitivity known

SEPTIC SHOCK

A single, FIRST dose of Meropenem 2g should be given (as a stat dose only) to initiate treatment in emergency within 1 hour of recognising Septic Shock.

Further treatment is based on site of probable origin of the infection.

Specimens: Blood culture. It is essential to collect at least 1 set before starting antibiotics. If clinical circumstances permit, a further 2 sets may be taken, by separate venepuncture, during a 2-4 hour period.

Duration: Appropriate broad spectrum antimicrobials should be commenced within 1 hour of presentation. In all cases intravenous antibiotics should be given for not less than 2 days and should continue for at least 24 hours after clinical recovery. If no clinical response after 48 hours, contact Consultant Microbiologist.

In cases of Neutropenic Sepsis, high risk of MRSA, or high risk of ESBL – refer to antimicrobial guidelines.

A full version of the antimicrobial guidelines is available on the intranet.
For further advice please contact Consultant Microbiologist via Switchboard.

Take into account **drug allergies**, and recent antibiotic use

Where patients have allergies always enquire nature of reaction. Distinguish true allergy from mild sensitivity. Patients with **true penicillin allergy are more at risk of receiving suboptimal antibiotic treatment** as the choices remaining are generally more toxic and less effective in a critical situation.

Beware of interactions and contraindications (seek advice from a pharmacist if unsure)

Refer to the **Sepsis poster** for guidance on best antibiotic choices **if underlying source is unknown.** These posters are on display in every clinical area. Find it and **check it out, so you know where it is when you need it! If underlying source is known, refer to the Blue Man Poster, also displayed on every clinical area.**

Antibiotic review

If underlying source of sepsis is known, (may not be apparent at first presentation) **refer to the Blue Man Poster** for antibiotic advice as this is much better **focussed for the infection source.** These posters are also displayed on every clinical area.

Find it and **check it out, so you know where it is when you need it!**

All antibiotic treatment should be reviewed regularly by a senior clinician, and a clear plan should be decided and documented in medical notes by 72 hours in regards to next antibiotic steps. This decision is guided by insight on diagnosis from investigations undertaken, bloods, observations and microbiology reports.

Where possible, the antibiotic choice should be narrowed down to treat the specific pathogen or infection type. IV to oral switch should be considered, and a proposed stop or review date must be clearly communicated on the prescription chart.

Reminder: The Sepsis poster and Blue Man poster are both available on the Antimicrobial pages of the intranet

Check it out, so you know where it is when you need it!

If in doubt contact us for advice:

Balwinder Bolla - Consultant Antimicrobial Pharmacist
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Sue Wen Leo - Senior Pharmacist Antimicrobials
01522 573464 or ULHT mobile 07585 881039

Isabel SzeWing Fok – OPAT and Antimicrobial Pharmacist
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Out of Hours – Contact the on-call Microbiologist via switchboard