Neutropenic Sepsis : Initial Management of Inpatients Algorithm 1

CUH
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Neutropenia and sepsis
Assess immediately as an emergency

- Neutrophil count $<0.5 \times 10^9$ or neutrophil count $<1 \times 10^9$ and falling
- Temp ≥38.3°C on one occasion or ≥38°C sustained over one hour or other SIRS criteria

Neutropenic Sepsis can be fatal if not treated promptly!
Give antibiotics **after** blood culture taken but **before** results are obtained

GOAL: Administer antibiotics within ONE HOUR of presentation to hospital.
Patient requires single room isolation with barrier nursing.

Assessment
- FULL history and examination
- FBC, bio-profile, CRP, Coag, lactate
- Septic screen
  - Urine C&S
  - Blood cultures (peripheral and central)
  - Throat swab
  - Sputum C&S
  - Stool culture if diarrhoea
  - Other relevant swabs
- CXR
- Consider ABG (if platelets >50)
- Pulse oximetry

Check allergy status & give first dose of antibiotics immediately
If patient is clinically well hold off on Gentamicin dose until renal function is known
Doses are for adults with normal renal and hepatic function

- Institute hourly observations as per EWS pathway
- Fluid resuscitate ensuring adequate urine output
- Follow hospital sepsis pathway

Proceed with utmost urgency in severe sepsis
If the patient has the following:
- Systolic BP <90mmHg or Mean Arterial Pressure <65mmHg or Systolic BP more than 40mmHg below patient's normal
- New need for oxygen to achieve saturation >90%
- Lactate >2mmol/L (following administration of fluid bolus)
- Urine output <0.5ml/kg for 2 hours – despite adequate fluid resuscitation
- Acutely altered mental status
- Glucose >7.7mmol/L (in the absence of diabetes)
- Creatinine >177micromol/L
- Bilirubin >34micromol/L
- PTR >1.5 or aPPT>60s
- Platelets $<100 \times 10^9$/L

The haematology/oncology registrar on call **must** be notified & anaesthetic review considered.

Patient with multiple myeloma / pre-existing renal impairment / platinum based chemotherapy

No

Yes

First line empiric treatment
Piperacillin-tazobactam 4.5g q6h IV
PLUS
Gentamicin 5mg/kg q24h IV (max 500mg).

Consider need for IV **Vancomycin/ Teicoplanin** (see box A below)

In penicillin allergy
Ciprofloxacin 400mg q8h IV (with prompt oral stepdown where possible)
PLUS
Gentamicin 5mg/kg q24h IV (max 500mg)
PLUS
Vancomycin OR Teicoplanin (see box A below for dosing)
ADD Metronidazole 500mg q8h IV if mucositis or GI symptoms present

Multiple Myeloma / Renal impairment / Platinum-based Chemotherapy
AVOID Gentamicin

Follow algorithm below but use **Ciprofloxacin 400mg** IV every 8 hours INSTEAD of Gentamicin (Prompt stepdown to oral ciprofloxacin where possible).

Box A: Add Vancomycin/ Teicoplanin if
- Suspected line infection
- Septic shock/HD unstable
- MRSA colonisation
- Skin/soft tissue infection

Vancomycin Dosing
25mg/kg loading dose then 15mg/kg q12h IV (max 2g per dose)
Teicoplanin Dosing
6mg/kg q12h for 3 doses, then q24h thereafter (round up to nearest 200mg)

Review Gentamicin after 48 hours
Review need for ongoing Gentamicin on a daily basis

Continue ONLY if consultant/ registrar recommended.
Discontinue after 48-72 hours if no positive cultures to suggest ongoing need.

Reassess at 48 hours – follow Algorithm 2

This is a brief summary guideline. For more detailed and further information see full Guidelines for the Management of Patients with Neutropenic Sepsis in CUH

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