Neutropenic sepsis

Presentation

Neutropenia is defined as:
- Neutrophil count of <0.5 x 10^9/l
- *or* a predicted rapid decline from <1.0 x 10^9/l to < 0.5 x 10^9/l following recent chemotherapy

Indications of infection may be:
- temperature of ≥38.5ºC on a single occasion
- temperature of 38ºC on two occasions at least 1 hour apart
- evidence of an infection focus, severe mucositis or diarrhoea, regardless of temperature
- hypotension or symptoms of shock, regardless of temperature
- deterioration in general condition or non-specific symptoms e.g. confusion in elderly, with only mild or absent fever.

Investigations

All patients:
- 3 sets of peripheral blood cultures (≥10mls in each bottle)
- FBC, U&E, LFT, CRP, clotting screen, Fibrinogen
- MSU
- CXR

As clinically indicated:
- Central lines: take blood cultures from each lumen (send first aliquot)
- Stool for micro, virology, and C difficile toxin in patients with diarrhoea
- Swab wounds, central line, throat etc
- Sputum
- CT brain / sinuses (facial pain/tenderness, nasal discharge/epistaxis, headache, eye signs)
- Consider bronchoalveloar lavage if infiltrates on CXR
- Consider nasopharyngeal aspirate

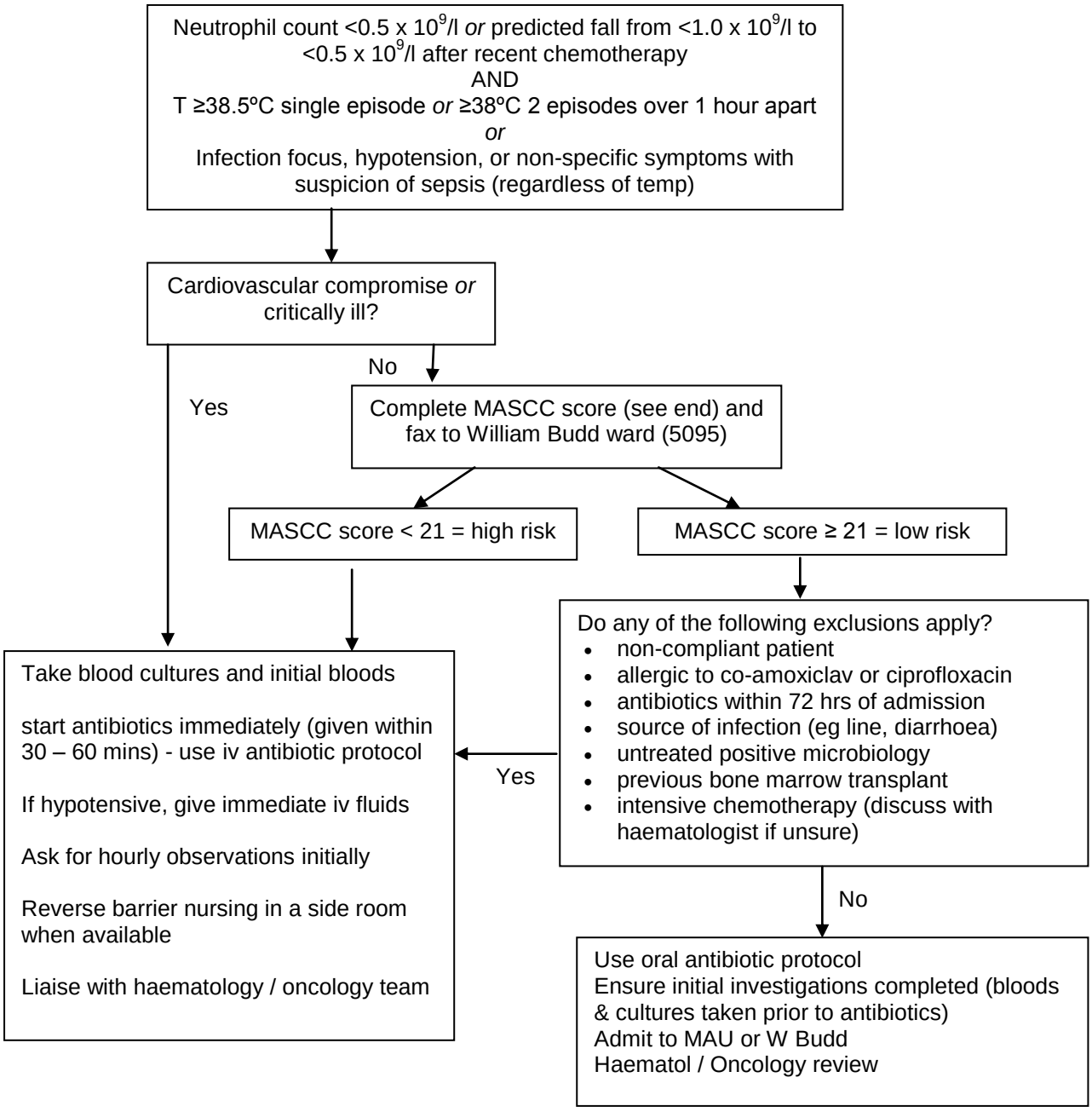
Haematology patients (discuss with haematologist on-call or SpR):
See separate guidelines for further investigations in high risk haematology patients

Initial assessment

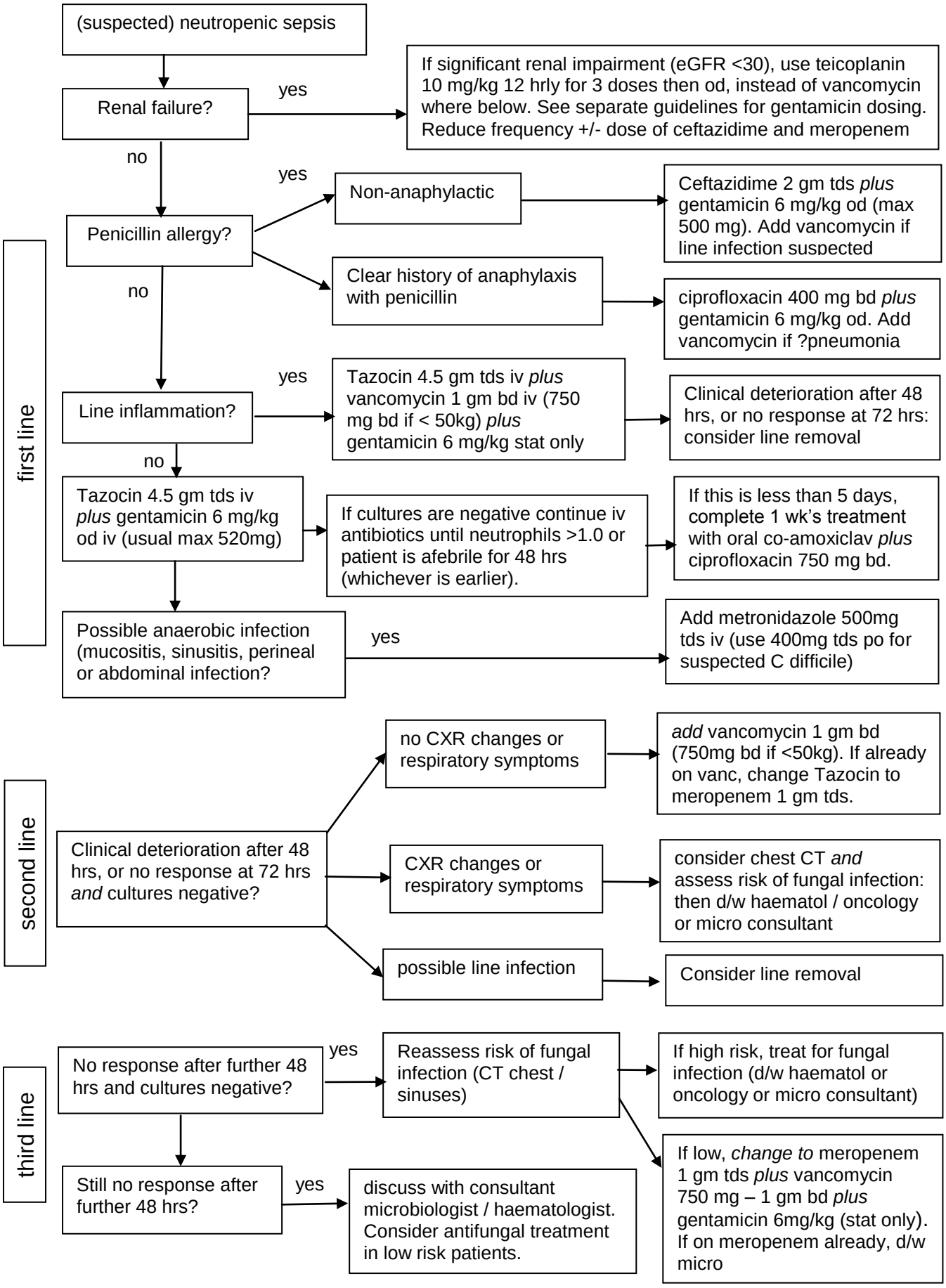
Complete a MASCC score proforma for all patients with neutropenic sepsis; fax to William Budd ward (5095). Subsequent management is dependent on this score (see MASSC proforma)

High risk patients
Infections may progress within hours to shock or death, especially when due to gram-negative bacilli. IV antibiotics and IV fluids must be administered within 1 hour of presentation

Low risk patients
Oral antibiotics are an acceptable alternative



Intravenous antibiotic protocol



General management points

- Examine patient daily as deterioration can be rapid (esp if clinical /radiological chest signs)
- Monitor fluid balance (catheterisation is required in most patients who are hypotensive)
- Check FBC, U&E and CRP daily until neutrophils are >1.0 unless specialist advice otherwise
- Repeat blood cultures if pyrexia persists or clinical condition deteriorates
- Ensure oncologist / haematologist managing underlying condition is aware of admission
- If not resolving or deteriorating discuss early with specialist team; consider suitability for ITU
- High risk haematology patients already taking neutropenic prophylaxis should continue their Corsodyl 10 mls tds after meals *plus* itraconazole liquid 2.5 mg/kg bd *plus* aciclovir 200 mg tds, +/- co-trimoxazole 480 mg bd x 3 /wk, but stop oral ciprofloxacin. Not for other patients.

Risks for systemic fungal infection (see separate guidelines):

- Prolonged neutropenia (high risk if >14 days)
- Corticosteroid therapy
- Breakdown of mucosal barriers
- Building work (exposure to fungal spores)
- haematology patients who have received high dose chemotherapy (eg for leukaemia)

Monitor antibiotic levels (see separate guidelines):

- Gentamicin check trough level 24 hrs after first dose and then twice weekly if OK (<1 mg/l)
- Vancomycin check trough level immediately before 3rd and 4th dose and then twice weekly if satisfactory (5-15 mg/l)
- Teicoplanin check trough level before 5th dose, then weekly if satisfactory (20 – 60 mg/l)

GCSF may be indicated in patients with poor prognostic factors – discuss with haematol / oncol:

- Profound (<0.1x10^{9}/l) or prolonged neutropenia
- Pneumonia, hypotension, or multi-organ dysfunction
- Invasive fungal infection

Oral antibiotic protocol

This applies only to low risk patients (MASCC ≥ 21) with none of the exclusion criteria

- Start co-amoxiclav 625 mg tds and ciprofloxacin 750 mg bd. Monitor vital signs 4 hrly
- Repeat FBC, U&E and CRP at 24 hrs
- Haem / Oncol team will review at 24 hours and discharge if stable and no deterioration
- Patients will be given antibiotics (7 days total), information sheet, and temperature diary
- Haem / Oncol team will arrange review (with results of cultures) on W Budd 48 hrs post d/c
- For oncology patients admitted on Fridays or Saturdays (where 24 hrs post admission falls over the weekend), patients remain as inpatients on oral antibiotics until review on Monday
- If there is any deterioration in the patients MASCC score, symptoms or signs during the admission period, then switch to the IV antibiotic protocol

Key contact details

Oncology SpR bleep: 7846 or 7678
Oncology secs: 4317 or 4797, fax: 4470
Oncology Matron: 1929 bleep 7619

Haematology in hours: bleep SpR on 7559
Haematol consultant out of hours: via switchboard
W Budd ward tel 5092 or 5093; fax: 5095

Related documents

MASCC proforma
Patient information: Oral antibiotic protocol