December 2012
No. 48

NICE Bites

Neutropenic sepsis

NICE CG151; 2012

This guideline covers the prevention and management of neutropenic sepsis in children, young people and adults having anticancer treatment.

Definition of terms

G-CSF	granulocyte-colony stimulating factor
Neutropenia	neutrophil count ≤0.5 x 10^9 per litre
IV	intravenous

Neutropenic sepsis is a potentially fatal complication of anticancer treatment, with mortality rates of 2-21% in adults.

Visit the NICE Pathway: Neutropenic sepsis

Training for healthcare professionals

- Provide training on neutropenic sepsis to healthcare professionals and staff who come into contact with patients having anticancer treatment. Training should be tailored according to the type of contact.

Information and support

- Before starting and during anticancer treatment, provide patients and carers with oral and written information on:
  - neutropenic sepsis,
  - when and how to contact 24-hour specialist advice or emergency care.

Reducing the risk of neutropenic sepsis

- For adults ≥18 years with acute leukaemias, stem cell transplant or solid tumours in whom neutropenia is an anticipated consequence of chemotherapy, offer prophylaxis with a fluoroquinolone e.g. ciprofloxacin* or levofloxacin*, during the expected period of neutropenia only.
- Monitor rates of antibiotic resistance and infection patterns in centres where patients are receiving fluoroquinolones for prevention of neutropenic sepsis.
- **Do NOT** routinely offer G-CSF for prevention of neutropenic sepsis in adults receiving chemotherapy unless they are receiving G-CSF as an integral part of the chemotherapy regimen or to maintain dose intensity.

Patients in the community – when to refer

- Suspect neutropenic sepsis in patients having anticancer treatment who become unwell.
- Refer immediately for assessment and treatment in secondary or tertiary care.

Emergency assessment and treatment in secondary and tertiary care

- Suspected neutropenic sepsis is an acute medical emergency. Start empiric antibiotic therapy immediately - see **Prescribing**.
- Do an initial clinical assessment of patients including:
  - history and examination,
  - full blood count, kidney and liver function tests (including albumin), C-reactive protein, lactate and blood culture.
- To identify the underlying cause of the sepsis conduct a further assessment by:
  - additional peripheral blood culture in patients with a central venous access device if clinically feasible,
  - urinalysis in all children <5 years.
- **Do NOT** perform a chest X-ray unless clinically indicated.

Prescribing

Empirical antibiotics

- Unless there are patient-specific or local microbiological contraindications, for initial empiric antibiotic therapy:
  - give monotherapy with the combination of piperacillin with tazobactam **U <2 years** to patients who need IV treatment.
  - **Do NOT** give an aminoglycoside e.g. gentamicin, either as monotherapy or dual therapy.
  - **Do NOT** give empiric glycopeptide antibiotics e.g vancomycin, to patients who have central venous access devices.
- **Do NOT** remove central venous access devices as part of the initial empiric management of suspected neutropenic sepsis.

Duration of treatment

- Continue inpatient empiric antibiotic therapy in all patients who have unresponsive fever unless an alternative cause of fever is likely.
- Discontinue empiric antibiotic therapy in patients whose neutropenic sepsis has responded to treatment, irrespective of neutrophil count.

Confirmed neutropenic sepsis

- Diagnose neutropenic sepsis in patients whose neutrophil count is ≤0.5 x10^9 per litre and who have either:
  - a temperature >38°C, **or**
  - other signs or symptoms consistent with clinically significant sepsis.

Management

- A healthcare professional competent in managing complications of anticancer treatment should assess the patient's risk of septic complications within 24 hours of presentation. Base the risk assessment on presentation features and use a validated risk scoring system.**

Patients at low risk of septic complications

- Consider outpatient antibiotic therapy. Take into account the patient's social and clinical circumstances. Discuss the need to return to hospital promptly if a problem develops.

Patients at high risk of septic complications

- Review the patient's clinical status and repeat the risk assessment daily using a validated risk scoring system.**
- **Do NOT** switch initial empiric antibiotics in patients with unresponsive fever unless there is clinical deterioration or a microbiological indication.
- If the risk of developing septic complications is reassessed as low - switch from IV to oral antibiotic therapy after 48 hours of treatment.
- Discharge patients only after the risk of developing septic complications has been reassessed as low. Take into account the patient's social and clinical circumstances and discuss the need to return to hospital promptly if a problem develops.

* See Summary of Product Characteristics for full prescribing information.

** Risk scoring systems include the Multinational Association for Supportive Care in Cancer risk index and the modified Alexander rule for children.

U Unlicensed indication. Obtain and document informed consent.

Produced for healthcare professionals by North West Medicines Information Service, The Pharmacy Practice Unit, 70 Pembroke Place, Liverpool, L69 3GF. Editor: Lindsay Banks. Telephone 0151 794 8117. E-mail: nwmedinfo@nhs.net

The table below lists all NICE guidance included in NICE Bites in 2012

NICE Guidance		NICE Bites Month/issue number
Acute upper gastrointestinal bleeding: management	NICE CG141; 2012	July 2012/43
Anaphylaxis	NICE CG134; 2011	May 2012/41
Antibiotics for early-onset neonatal infection	NICE CG149; 2012	September 2012/45
Crohn's disease	NICE CG152; 2012	November 2012/47
Dabigatran etexilate and rivaroxaban for the prevention of stroke and systemic embolism in atrial fibrillation	NICE TA249, TA256; 2012	July 2012/43
Diagnosis and management of headaches	NICE CG150; 2012	October 2012/46
Epilepsy	NICE CG137; 2012	January/February 2012/38
Fingolimod for the treatment of highly active relapsing-remitting multiple sclerosis	NICE TA254; 2012	July 2012/43
Hepatitis C – Technology appraisals	NICE TA75, 106, 200, 252, 253	May 2012/41
Infection control	NICE CG139; 2012	April 2012/40
Neutropenic sepsis	NICE CG151; 2012	December 2012/48
Opioids in palliative care	NICE CG140; 2012	June 2012/42a
Pharmalgen for the treatment of bee and wasp venom allergy	NICE TA246; 2012	May 2012/41
Prevention of venous thromboembolism after hip or knee replacement surgery in adults	NICE TA157, TA170, TA245, CG92	March 2012/39a
Rheumatoid arthritis	NICE CG79; 2009	March 2012/39a
Rheumatoid Arthritis – Technology appraisals	NICE TA130, TA186, TA195, TA225, TA234, TA247	March 2012/39a
Venous thromboembolic diseases	NICE CG144; 2012	August 20120/44
Venous thromboembolism - Rivaroxaban	NICE TA261; 2012	August 20120/44

CG = Clinical Guideline
TA = Technology Appraisal