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Acute care toolkit 7

Acute oncology on the acute medical unit

November 2023

Who should read this toolkit?

This toolkit aims to support acute and general medical clinicians caring for patients with cancer who have been admitted to acute care. It outlines key presentations, pathways and complications in acute oncology. It provides service recommendations for acute hospitals and acute oncology services.

All physicians should also be clear on the meaning and use of terms used in oncology (see Appendix).

Introduction

Cancer treatment has progressed rapidly over recent years, with more people living with treatable cancer, and once-novel biological therapies are a standard of care. These changes have led to increased acute hospital admissions for patients with complications of their cancer, complications of treatment, and other medical issues unrelated to their cancer. Around 15% of acute hospital admissions may be for cancer or cancer-related conditions.[1] In addition, 31% of cancers are diagnosed in the emergency setting in England.[2] Therefore, many patients with known and new cancer diagnoses are admitted to and cared for on acute medical units (AMUs).

An increasing proportion of these patients can be managed appropriately through same-day emergency care (SDEC).

Acute oncology services have also continued to develop over recent years.[3] Good communication between acute medicine, oncology, palliative care and acute oncology services (AOS) is essential for optimal management of this growing, complex group of patients. Most patients with cancer will require urgent care at some point.

> “Many patients with known and new cancer diagnoses are admitted to and cared for on acute medical units (AMUs).'

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Common acute oncology emergencies

Acute oncology emergency	Definition / further information
Febrile neutropenia (FN)	Defined as a neutrophil count of <0.5 × 10^9/L with a temperature >38°C or <36°C, and is associated with mortality between 2% and 21%[4]
Metastatic spinal cord compression (MSCC)	Includes both spinal cord and cauda equina compression in patients with known malignancy[5]
Hypercalcaemia of malignancy	A common complication of malignancy. Patients often require bone-directed therapy
Oncological immunotherapy (IO) complications	Immune checkpoint inhibitors (ICIs) can elicit a wide spectrum of autoimmune-like side effects, including dermatitis, colitis, pneumonitis, hepatitis and endocrinopathies including hypophysitis
New brain lesions	May be primary or secondary. Require liaison with neurosurgery and oncology; commence dexamethasone
Superior vena cava obstruction (SVCO)	Requires histological diagnosis for decision of optimal treatment. Few patients will require immediate intervention

Prognosis for patients with cancer presenting acutely

For many patients with cancer, an acute, unscheduled admission is a marker of deteriorating health and prognosis. The risk of readmission can be high, with 6-month mortality up to 70%.[2] Where possible and appropriate, discussion around future care needs, overall care aims and potential need for increased community support following admission should be considered, particularly for those with progressive disease.

The prognosis for many metastatic cancers has improved with new treatments; however, multi-organ involvement and significant metastatic burden will impact patients' ability to recover from concomitant illness and complications of treatment at the time of admission. An acute illness and admission can weaken patients to an extent that further oncological treatment is no longer beneficial.

Understanding goals of current cancer treatment and scope for further treatment is important early in a patient's admission. It may no longer be in their best interest to continue treatments with potentially toxic profiles and, for many patients with life-limiting cancers, discussion of the benefits of treatment and risks of further admission to hospital vs benefits of time at home is important.[6,7]

Repeated evaluation of prognosis is important for patients with cancer. With better treatments for previously incurable cancers, many metastatic cancers are now survivable for 5 years or more. The patient's other health conditions, frailty and whether their acute diagnosis is reversible all play a role in these decisions. Involving the patient and their family, AOS as well as their usual oncology team, and recognising patients' ethnic and cultural diversity are essential for these discussions.

> "Understanding goals of current cancer treatment and scope for further treatment is important early in a patient's admission.'

Involving the palliative care team in an acute admission is important if the patient is unlikely to survive the admission or is probably in their last weeks or days of life.[6] Referral should be informed by a discussion with the treating oncology team to establish the likely prognosis.

[6]Acute care resource: End-of-life care in the acute care setting. RCP, 2021. www.rcp.ac.uk/projects/outputs/acute-care-resource-end-life-care-acute-care-setting

For older patients, consider early comprehensive geriatric assessment if their Clinical Frailty Scale score is >6. Key points to consider acutely include the higher risks of delirium, drug interactions and the benefit of continuing long-term medications in the context of a diagnosis of advanced cancer. Forward planning of home care needs is important to avoid prolonged hospital admission.

Key questions to ask your patient who has a diagnosis of cancer

- What matters to you?
- What is your understanding of your cancer and the goal of your cancer treatment?
- Do you have a cancer keyworker / cancer nurse specialist?
- Have you been given an alert card for cancer treatment?
- Are you currently taking any tablets/injections for cancer treatment?
- Have you had any cancer treatment (chemotherapy) (by injection/infusion or by mouth) in the past week?
- Have you had any immune treatment for cancer in the past 12 months?
- Have you ever had radiotherapy for cancer?

Performance status

Most oncology multidisciplinary teams (MDTs) use ECOG/Zubrod performance status (PS) as a guide to what treatment for a patient is appropriate. It is a useful term to include on referrals for patients with new/recurring cancers, and to aid decisions on whether continuing treatment is appropriate in deteriorating patients (see figure).

Performance status should be based on the patient's status prior to the acute illness, deterioration or admission.

ECOG performance status scale for patients with cancer diagnoses		
0		**Fully active, able to carry on all pre-disease performance without restriction**
1		**Restricted in physically strenuous activity, but ambulatory and able to carry out work of a light or sedentary nature, eg light housework, office work**
2		**Ambulatory and capable of all self-care, but unable to carry out any work activities; up and about for more than 50% of waking hours**
3		**Capable of only limited self-care; confined to bed or chair for more than 50% of waking hours**
4		**Completely disabled; cannot carry out any self-care; totally confined to bed or chair**
5		**Dead**

Oken MM *et al.* Toxicity and response criteria of the Eastern Cooperative Oncology Group. *Am J Clin Oncol* 1982;5:649–55.
https://ecog-acrin.org/resources/ecog-performance-status/

Common presentations in acute oncology

Presentation	Consider
Fatigue/generally unwell	> electrolyte disturbances > adrenal insufficiency* > hyperglycaemia > anaemia > hypothyroidism* *can be ICI/IO related, including hypophysitis
Shortness of breath	> pulmonary embolus > chest infection or sepsis > pneumonitis secondary to IO > cardiac failure including myocarditis > pulmonary spread of cancer
Fever	> febrile neutropenia > immunotherapy-related toxicity > indwelling line > disease related (nodal involvement)
Chest pain	> pulmonary embolus > pleurisy from infection > anaemia worsening angina > chemotherapy-induced coronary spasm
Nausea/vomiting	> chemotherapy related > constipation (may be due to hypercalcaemia) > electrolyte disturbance > low cortisol > bowel obstruction Ensure hydrated and sufficient anti-emetic treatment
Diarrhoea	> chemotherapy or radiotherapy related > ICI-induced colitis Do not give loperamide first line to patients on immunotherapy, as it will mask response
Headaches/new confusion	> brain metastases > hypercalcaemia > electrolyte disturbances > hypophysitis
Pain related to cancer/ metastases	Ensure effective analgesia, treatment of hypercalcaemia and treatment of side effects eg constipation

Management of common acute oncology emergencies

For detailed pathways, see:

[8]UK Oncology Nursing Society. Acute oncology initial management guidelines. UKONS, 2018. https://ukons.hosting.sundownsolutions.co.uk/

Febrile neutropenia (FN)

- Once FN is **suspected**, administer an immediate first dose of empirical broad-spectrum antibiotics. Don't wait for blood results to confirm neutropenia.
- Ensure that blood cultures / other appropriate cultures are taken, dependent on symptoms. Peripheral and line cultures should be taken if an indwelling line is present.
- Once FN is **confirmed**, refer to local policy for further management.
- FN management should be integrated into standard suspected sepsis[8] and infection pathways, including COVID-19, risk assessment utilising NEWS2 and clinical judgement, and source identification.
- Do not remove indwelling lines/devices unless there is a clear requirement to do so, and after advice of AOS.

Following initial assessment, a validated risk score (eg MASCC score)[4] should be calculated. Patients with a MASCC score ≥21 are at low risk for complications and may be suitable for ambulatory outpatient management, according to local policy and with appropriate safety-netting.[4]

Patients not found to be neutropenic with evidence of potential bacterial infection/sepsis still require appropriate treatment with antibiotics, in accordance with local guidelines and antimicrobial policies.

Metastatic spinal cord compression (MSCC)

Around 20% of MSCC presentations are new cancer diagnoses. The most common cancers causing this are breast, prostate and lung cancer, and myeloma.

Red flags for suspect MSCC are:

- back pain – especially progressive pain that is 'band like'
  - localised spinal tenderness
  - straining with pain in cervical and thoracic spine
  - nocturnal spinal pain preventing sleep
- neurological signs/symptoms
  - limb weakness
  - difficulty walking
  - sensory level
  - bladder/bowel dysfunction.

These neurological signs are poor prognostic indicators.[5]

Request urgent **whole-spine** MRI within 24 hours for anyone with suspected MSCC, as around 30% of patients have multi-level malignant infiltration.

If MSCC is confirmed:

- discuss management with the acute oncology team and MSCC coordinator if available
- nurse the patient flat
- refer for urgent advice from oncology or haematology if the patient was not known to have cancer
- commence dexamethasone 16 mg stat, then 8 mg twice daily (morning and lunchtime) with proton pump inhibitor co-prescribing. Consider delaying steroids if cancer is not known and a biopsy may be required
- refer for definitive treatment to spinal surgeon and clinical oncology, using local protocols once diagnosis is established. Opinions should be available 7 days a week and extended hours.

Hypercalcaemia of malignancy

Hypercalcaemia is most common in patients with bone metastases. This is more common in patients with breast, prostate, lung, thyroid and renal cancer. A bone scan should be considered if the patient is not known to have bone metastases. Hypercalcaemia can reduce renal function with its associated acute complications. Hypercalcaemia refractive to treatment is difficult to manage, so involve palliative care early.

- Measure serum calcium in patients with suspected cancer, or known cancer with new bone pain, confusion, abdominal pain or constipation.
- Treat urgently if serum calcium >3.0–3.4 mmol/L with symptoms or >3.4 mmol/L without.
- Investigate hypercalcaemia, including parathyroid hormone (PTH) if it is the first presentation.
- Correct hypovolaemia. Hypercalcaemic patients may require up to 4 L intravenous 0.9% NaCl over 24 hours to correct hypovolaemia. This increases calcium excretion.
- If the patient continues to be hypercalcaemic once euvolaemic, consider intravenous bisphosphonate therapy.
- Avoid premature retesting/retreatment, as bisphosphonates take 3–5 days to reach maximal efficacy.
- If hypercalcaemia does not respond to treatment, attention should be paid to management of symptoms.

Oncological immunotherapy (IO)

IO with immune checkpoint inhibitors (ICIs) can elicit a wide spectrum of autoimmune-like side effects on any organ. These include:

- pneumonitis
- colitis
- hepatitis
- myocarditis
- endocrinopathies including new diabetes, thyroid, adrenal and pituitary (hypophysitis)
- neurotoxicity including myasthenia gravis and Guillain–Barré syndrome.

These side effects often evolve during immunotherapy treatment delivery, but can be seen at any time following commencement of treatment to years after completion. Some may be life-threatening if not recognised early. Always consider immune-related side effects in any patient with cancer who is unwell and has received ICI therapy in the past 12 months (although effects may be seen >24 months after stopping treatment).

ICI toxicities generally require active intervention with immunosuppression, as removal of the ICI alone does not generally lead to resolution of the toxicity.

Every hospital acute medical team should have training and ready access to immune-toxicity management guidelines, facilitated by AOS.

Use regional guidelines, or if not available UKONS national guidelines[8] or ESMO international guidelines.[11]

Note

Patients with immune-related toxicities often are clinically well with vague symptoms, so it is prudent to consider the most severe presenting parameter to guide assessment and treatment.

New brain lesions

New brain lesions are a common finding on acute admission; these include presentation of new primary brain cancer and diagnosis of brain metastasis, either from a known or a new cancer. First steps include:

- clinical assessment including a CT brain scan, performance status and neurological assessment
- urgent referral to neurosurgical team if:
  - large tumour with >1 cm midline shift
  - posterior fossa tumour with hydrocephalus
  - suspected primary central nervous system (CNS) lymphoma
- referral to appropriate team (eg acute oncology and/or treating team if known cancer)
- dexamethasone as per local guidelines; if guidelines not available, dexamethasone 8 mg once daily (morning) with proton pump inhibitor is a reasonable choice
- provide patient information and inform them not to drive.

Next steps differ according to radiological diagnosis of a suspected brain tumour. They may include:

- MRI brain scan with contrast
- CT TAP scan if metastatic disease.

Many patients can be managed via SDEC with appropriate safety-netting and a named key worker.

Local referral pathways should be in place; treatment options are likely to include primary surgery, or focal radiotherapy for a single lesion or a limited number of lesions. Whole-brain radiotherapy can be used for multiple metastatic lesions, but the benefits may be outweighed by toxic side effects.

Patients with performance status 3 or 4, extensive disease and/or limited response to treatment with steroids are most likely to be suitably managed with best supportive care.

Local pathways, and particularly identification of a key worker, are important to avoid dislocated care.

Superior vena cava obstruction (SVCO)

SVCO requires histological diagnosis for decision of optimal treatment. Few patients will require immediate intervention.

Symptoms include dyspnoea, stridor, headache, non-pulsatile raised jugular venous pressure, dilated anterior chest wall veins, confusion, chest pain and swelling of face and neck.

- Confirm with CT pulmonary angiogram.
- Refer patients with severe symptoms for possible interventional radiology-guided stent insertion.
- Arrange for a biopsy in patients who do not have a histological diagnosis of malignancy.

Note

Lymphoma is an important diagnosis to consider for patients presenting with SVCO.

- Patients may require radiotherapy, either following stent insertion or if stent insertion is not possible. Discuss this with AOS as soon as possible after diagnosis.

> “Many patients [with new brain lesions] can be managed via SDEC with appropriate safety-netting and a named key worker.'

Advanced cellular therapies

Advanced cellular therapies[11,12] include treatments such as chimeric antigen receptor (CAR) T-cell and tumour-infiltrating lymphocytes (TILs). These treatments are delivered via accredited centres that should oversee management of toxicity. Major toxicity is usually seen in the first 28 days after cell infusion, but can occur later. These toxicities include:

- cytokine release syndrome
- immune effector cell-associated neurotoxicity syndrome (ICANS)
- tumour lysis syndrome
- infection
- graft-versus-host disease.

Later toxicities can include:

- atypical infections (viral, fungal, CNS)
- cytopenias.

Urgent expert advice should be sought in all cases and patients are commonly readmitted to a specialist centre.

Key practice points

Stop all oral and IV systemic anti-cancer therapy until advised by AOS/oncology treating centre	emc electronic medicines compendium is free and gives detailed data on toxicity profile www.medicines.org.uk/emc
Beware: many patients have been exposed to intermittent high-dose steroids for IO toxicity, palliation and during chemotherapy	Watch for acute diabetes complications, steroid-induced confusion/psychosis and acute adrenal insufficiency
Review all medicines and doses, particularly in older patients, and ask about weight loss	Many chemotherapy drugs impact on renal function and nausea; vomiting and diarrhoea commonly lead to dehydration. Long-term medication for chronic disease should be reviewed on admission
Patients may develop side effects of treatments or disease as struggling to take supportive medications	Consider whether patient is absorbing drugs; patients may have poor oral absorption, be struggling to swallow, and/or confused about how and when to use medications
Consider what an acute oncology admission means to future healthcare needs	For patients living with incurable cancer, an admission frequently marks a transition in care, with a high risk of multiple admissions, and 70–80% of patients live for less than a year following admission
Pain is a very common reason for admission and may be undertreated in acute care	While awaiting investigations with/without referral to palliative care, strong opioids can be safely and effectively started and titrated. Inform patient of need for laxative and prescribe www.nice.org.uk/guidance/cg140
Teenage and young adult (TYA) cancers	TYA cancers frequently present as an emergency; involve specialist services ASAP, including AOS team and TYA cancer specialists

Same-day emergency care (SDEC) for acute oncology

Many acute oncological presentations can be managed through SDEC. Access to rapid diagnostic clinics and oncology hot clinics for malignancy of unknown origin can be useful to access diagnostics in a timely manner without admission. Many patients with cancer would prefer the option to be treated through an ambulatory service and to avoid having to interact with busy emergency departments (EDs) / AMUs. This may also reduce the exposure of immunocompromised patients to other infections.

AOS and local oncology teams should work with SDEC departments and AMUs to improve confidence in outpatient and SDEC management of patients with acute oncological presentations.

Cancer hotlines provide expert advice 24/7 to patients with cancer undergoing systemic anti-cancer therapy (SACT) and are well placed to support direct streaming pathways into SDEC.

Consider SDEC for patients with:

- low-risk febrile neutropenia
- electrolyte disturbances, including hypercalcaemia
- low-grade immunotherapy toxicities
- coincidental findings on CT scans (including MSCC) with no symptoms or abnormal neurology
- cancer-associated venous thromboembolism
- abnormal blood tests (such as LFTs).

> “Many patients with cancer would prefer the option to be treated through an ambulatory service and to avoid having to interact with busy emergency departments / AMUs.'

Acute oncology services (AOS)

The core principles underpinning AOS have been defined as:

> 'To promote education, awareness and early access to specialist oncology input, as well as a more integrated way of working between oncology and acute specialties within hospital trusts.'[13]

AOS will see all patients who are being treated for cancer and present to hospital or ED, and those with new suspected cancer who are in ED or hospital. They will particularly support the patients shown in the table below.

> 'Acute oncology services (AOS) are vital for providing consistent and high-quality care for patients, for optimising clinician time and expertise, and for ensuring the best use of NHS resources.'[2]

Patients most appropriate for AOS working with acute medicine

AOS can support the development of pathways for acute admissions. They can provide a 24-hour treatment helpline directly to AMU or SDEC areas, and for patients discharged from AMU/SDEC.

Patients appropriate for AOS	How can AOS help?
New cancer diagnoses – especially in cases of malignancy of unknown origin	Signpost to appropriate MDT referrals for new cancer patients/recurrence
Progression or complications of known cancer	Advice and expertise about oncological emergencies and treatment complications
Treatment complications	
Need to clarify treatment goals / appropriate ceilings of treatment with patient's oncologist	Access to senior oncologist advice
	Access cancer records
Referred via 24-hour treatment helplines	Continuity of care
To confirm oncology follow-up / SDEC management prior to discharge	In some centres – follow up patients with new diagnoses/ complications until seen by their oncologist

Acute oncology service recommended core team

- Clinical nurse specialists
  Many teams have an advanced nurse practitioner (ANP)
- Medical consultant
  (acute or general medical with an interest in acute oncology (AO), or an oncologist with an interest in AO)
- Allied health professionals (AHPs) such as dietitians, physiotherapists, occupational therapists with experience in cancer care
- Coordinator – to help identify appropriate patients and provide administrative support, data collection

Key recommendations for services

SDEC	Same-day emergency care is invaluable: it can benefit patients with cancer and reduce admissions
Clear clinical guidelines and link to expert advice 24/7 (treating cancer centre)	All AMUs require electronic access to clinical guidelines including referral pathways for common emergencies: MSCC, new brain lesions, malignancy of unknown origin, complications of immunotherapy and how to access expert oncology advice
Immunotherapy clinical lead and team	Immunotherapy is becoming a standard of care for many common cancers, can deliver durable responses and may be combined with chemo- and radiotherapy Acute teams need to be aware of novel toxicity, have access to guidelines and clear links to experts in ICI toxicity
Patients with acute oncology needs frequently need MDT expertise: acute medicine, acute oncology and palliative care	Consider how best to integrate acute oncology teams and palliative care into day-to-day working of the AMU. AOS teams often have experience in advanced communications and may be happy to support honest conversations about disease progression and levels of care
Hospital at home	Patients with cancer should have access to hospital at home to support admission avoidance and early supported discharge

Conclusion

Cancer treatment pathways are increasingly complex; address the immediate needs to stabilise the patient, focus on good symptom control, talk to patients and families about choices and seek expert support early. Sadly, many acute oncology patients are in their last year of life. Taking time to listen and talk is often more useful than tests. This can be daunting, particularly with patients with complex oncological histories, minimal other health conditions or young families. Acute oncology teams often have many years of experience in patient-centred care and can offer support.

> “Sadly, many acute oncology patients are in their last year of life. Taking time to listen and talk is often more useful than tests.'

Recommendations for quality improvement initiatives

- Consider developing named acute oncology leads or link clinicians in AMU. Establish good team working between acute oncology and AMU; patients are frequently reassured that the treating team are involved.
- Use of SDEC pathways for emergency cancer patients, eg audit number of pathways in place, number and type of patients seen. Opportunity to develop pathways between acute oncology and acute medicine.
- Medication reviews; if a patient is identified to have a limited prognosis, was an appropriate review of medication carried out? (eg use medications for long-term benefit such as statin and hypertensive)
- Use of low-risk neutropenic sepsis pathways[9]
- Assessment of pain in MSCC and other diagnoses. If the patient admitted was in pain, were local guidelines followed and improved pain control documented?

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