

Oncologic Emergency Guidelines

Cancer patients are at risk for medical emergencies. These acute events may arise either from the tumour itself, to the treatment given to control the tumour or it may be related to a new or previously existing condition not related to cancer. Because such conditions may require emergency treatment, the recognition of these emergencies at the earliest stage is critical as it improves outcomes. These triaging guidelines should therefore be familiar to all TBCC clinical and non-clinical staff that are involved in triaging new TBCC cancer patients, either in person or through the patient referral process. A one page summary of these guidelines is provided in Appendix C for use as a reference tool by triage clinicians.

Superior Vena Cava Syndrome

Presenting features/symptoms	<ul style="list-style-type: none"> • Clinical findings that indicate possible emergency: <ul style="list-style-type: none"> ◦ New/progressive neck/facial/arm swelling, often with associated dilated chest and neck veins, progressive shortness of breath including shortness of breath while lying down or bending forward ◦ Especially concerning if associated with proptosis (bulging eyes), stridor (noise on breathing inward), tongue swelling or drowsiness • Often associated with several other symptoms, related to tumour in chest • May be identified solely on CT chest report as tumour causing compression of superior vena cava, even in the absence of clinical description of poor patient status within the referral documentation
Reason for urgency	<ul style="list-style-type: none"> • Without treatment, average survival in patients with Superior Vena Cava Syndrome due to cancer is about 1 month.
Associated tumour type/s	<ul style="list-style-type: none"> • Lung cancer and lymphoma are the 2 most common malignant causes of Superior Vena Cava Syndrome, but any type of cancer cause it.
Action	<ul style="list-style-type: none"> • If not already done, CT chest with contrast (should be ordered by referring physician).
Management	<ul style="list-style-type: none"> • Triage clinician discuss patient with on-call Radiation Oncologist to confirm emergency • If situation is identified as an emergency, Radiation Oncologist decides whether to: <ul style="list-style-type: none"> ◦ advise the patient to go to the Emergency Department ◦ organize emergency/urgent consult in TBCC ◦ organize further test(s) ◦ talk to the referring / family physician • The decision should be documented on the referral form and the documentation transferred to TBCC physician.

Spinal Cord Compression (SCC)

Presenting features/symptoms	<ul style="list-style-type: none"> • Pain: Back pain is usually the first symptom of SCC; it is often constant, dull, aching and sometimes radiating. The pain may progress slowly or quickly (crescendo pain, each day worse than the previous). It is exacerbated by movement, especially when flexing the neck or raising the legs, coughing, sneezing, or straining. Leg pain may occur and be unilateral or bilateral radiating from the back. • Motor Weakness: This usually follows pain. Patients may experience stiffness and heaviness of the affected extremity, they may present with an unsteady gait or ataxia and foot drop. • Sensory Impairment: This usually follows pain; symptoms include loss of sensation, numbness, tingling, pins and needles type feeling and coldness in the affected area. • Autonomic dysfunction: Loss of bladder control results in urinary retention, frequent small voids, overflow or incontinence. Loss of bowel control such as the urge to defecate, may lead to constipation or incontinence. Loss of sphincter control is often a later sign that is associated with a poor prognosis. Sexual impotence may also manifest.
Reason for urgency	<ul style="list-style-type: none"> • Without identification and a delay in the appropriate treatment, complete and irreversible paraplegia may develop within hours to days.
Associated tumour type/s	<ul style="list-style-type: none"> • Includes any cancer. Most common are lung, breast and prostate.
Action	<ul style="list-style-type: none"> • MRI of the affected area provides the best definition of spinal lesions and is the procedure of choice. • The goal of treatment is for pain relief, restoration of any neurological deficits, stabilization of the spinal cord and tumour control. Treatment depends on the type of tumour, its location, the speed of onset, the level and severity of the compression and the patient's functional level before the onset of symptoms. Treatment in the early stages of SCC is usually effective and includes the following: <ul style="list-style-type: none"> ○ Radiation therapy is the standard treatment; it resolves pain by decreasing the tumour mass which relieves the SCC. Patients may experience relief of their symptoms within days of starting the therapy and pain is sometimes relieved within hours of commencement. ○ Corticosteroid therapy (dexamethasone) is given to decrease the edema and cord compression caused by the tumour thus assisting in relieving the patient's pain. It may also assist in improving neurological function. ○ Decompressive surgery (laminectomy) with or without stabilization may be considered for patients with rapidly progressing neurological deficits, the inability or failure to respond to radiotherapy or a pathological fracture that is causing instability or compression to the spinal cord. ○ Chemotherapy is occasionally used in patients with chemo sensitive tumours such as Hodgkin's disease or lymphoma.
Management	<ul style="list-style-type: none"> • Triage clinician discuss patient with on-call Radiation Oncologist to confirm emergency • If situation is identified as an emergency, Radiation Oncologist decides whether to: <ul style="list-style-type: none"> ○ Advise the patient to go to the Emergency Department ○ Organize emergency/urgent consult in TBCC ○ Organize further test(s) ○ Talk to the referring /family physician • The decision should be documented on the referral form or patient chart and the documentation transferred to TBCC physician.

Electrolyte abnormalities

Presenting features/symptoms	<ul style="list-style-type: none"> • Most commonly, electrolyte abnormalities are identified by lab tests • Patients may have an altered level of consciousness • Nausea /vomiting • Profound weakness
Reason for urgency	<ul style="list-style-type: none"> • Left untreated condition will result in severe dehydration, renal failure, neurological symptoms including coma leading to death, heart rhythm problems and other life threatening problems.
Associated tumour type/s	<ul style="list-style-type: none"> • Lung (by far the most common) • Prostate • Kidney • ANY OTHER CANCER
Investigation	<ul style="list-style-type: none"> • Serum electrolytes, including calcium, magnesium and phosphorus, and serum creatinine, BUN
Management	<ul style="list-style-type: none"> • Triage clinician discuss patient with on call Medical Oncologist to confirm emergency • If situation is an emergency Medical oncologist decide whether to: <ul style="list-style-type: none"> ◦ Advise the patient to go to emergency ◦ Organize an urgent consult ◦ Organize further tests ◦ Talk to the family physician • The decision should be documented on the referral form and the documentation transferred/filed appropriately

Hypercalcemia

Presenting features/symptoms	<ul style="list-style-type: none"> • Altered level of consciousness • Nausea/vomiting • Bone pain
Reason for urgency	<ul style="list-style-type: none"> • Condition results from disrupted calcium homeostasis • Left untreated condition will result in severe dehydration, renal failure, neurological symptoms including coma leading to death, etc.
Associated tumour type/s	<p>Arises in ANY CANCER including but not limited to:</p> <ul style="list-style-type: none"> • Breast • Lung • Kidney • Myeloma • Lymphoma • May result from bone metastases or paraneoplastic syndromes
Investigation	<ul style="list-style-type: none"> • Measure serum calcium and serum albumin
Management	<ul style="list-style-type: none"> • Triage clinician discuss patient with on call Medical Oncologist to confirm emergency • If situation is an emergency Medical oncologist decide whether to: <ul style="list-style-type: none"> ◦ Advise the patient to go to emergency ◦ Organize an urgent consult ◦ Organize further tests ◦ Talk to the family physician • The decision should be documented on the referral form and the documentation transferred/filed appropriately

Malignant Bowel Obstruction

Presenting features/ symptoms	<ul style="list-style-type: none"> • Increased Abdominal Pain, often crampy and intermittent • Lack of bowel movement >24h • Lack of ostomy movement >8h • Nausea with vomiting, often bilious • Lack of feeling of bowel sounds or rumbling • May be associated with fever, tachycardia or peritoneal signs 	
Reason for urgency	<ul style="list-style-type: none"> • Risk for perforation • Dehydration • Acute Renal Failure • Septic Shock • Ischemic gut • Peritonitis 	
Associated tumour type/s	<ul style="list-style-type: none"> • Gastrointestinal <ul style="list-style-type: none"> ◦ Gastric ◦ Pancreatic ◦ Cholangiocarcinoma ◦ Small Bowel ◦ Large Bowel ◦ Gastrointestinal Stromal Tumours 	<ul style="list-style-type: none"> • Ovarian • Breast • Lymphoma • Neutropenic conditions • Previous Abdominal Surgery • Hernia
Investigation	<ul style="list-style-type: none"> • 3 views Abdomen showing air fluid levels • CT Abdomen and /or abdominal ultrasound 	
Management	<ul style="list-style-type: none"> • Triage Clinician to discuss with attending oncologist to confirm medical emergency • If situation is emergent, oncologist to determine whether to: <ul style="list-style-type: none"> ◦ Advise patient to go to emergency ◦ Consult on call surgeon directly • The decision should be documented on the referral form and the documentation transferred/filed appropriately 	

Raised Intracranial Pressure

Presenting features / symptoms	<ul style="list-style-type: none"> • Clinical findings that indicate possible emergency: <ul style="list-style-type: none"> ◦ New/progressive drowsiness or headache • Often associated with several other symptoms, related to raised intracranial pressure, including nausea and vomiting, spells of impaired vision or hearing, or progressive weakness or numbness
Reason for urgency	<ul style="list-style-type: none"> • Without treatment, patients with raised intracranial pressure are at risk of sudden death or permanent neurological impairment from herniation or ischemia
Associated tumour type/s	<ul style="list-style-type: none"> • Primary malignant brain tumors such as GBM, and multiple brain metastases such as breast, lung or melanoma, are most common causes
Action	<ul style="list-style-type: none"> • If not already done, CT scan of the head with or without contrast, and urgent assessment by a physician
Management	<ul style="list-style-type: none"> • Triage clinician discuss patient with on-call Radiation Oncologist or Medical Oncologist to confirm emergency • If situation is identified as an emergency, Oncologist decides whether to: <ul style="list-style-type: none"> ◦ Advise the patient to go to the Emergency Department ◦ Organize emergency/urgent consult in TBCC ◦ Organize further test(s) ◦ Talk to the referring /family physician • The decision should be documented on the referral form and the documentation transferred to TBCC physician

Life-threatening Respiratory Difficulty

Presenting features/symptoms	<ul style="list-style-type: none"> • Shortness of breath at rest or with minimal movement • Chest pain
Reason for urgency	<ul style="list-style-type: none"> • Patients can experience respiratory arrest and death
Associated tumour type/s	<ul style="list-style-type: none"> • Arises in ANY INVASIVE CANCER or any cancer associated with a blood clot
Investigation	<ul style="list-style-type: none"> • Differential diagnosis includes but not limited to pleural effusion, pulmonary embolus (PE), and cardiac tamponade. Obtain urgent CT chest with PE protocol. Chest x-ray or cardiac ultrasound can also be useful. Consider bloodwork including ABGs
Management	<ul style="list-style-type: none"> • Triage Clinician to discuss with attending oncologist to confirm medical emergency • If situation is emergent, oncologist to determine whether to: <ul style="list-style-type: none"> ◦ Advise patient to go to emergency ◦ Consult on call pulmonologist or internist directly • The decision should be documented on the referral form and the documentation transferred/filed appropriately

Potential Upper Airway Obstruction

Presenting features/symptoms	<ul style="list-style-type: none"> • Stridor (noise while breathing in or out); shortness of breath; a feeling of tightness in the throat or airway; even if asymptomatic, the presence of tumor that is known to be invading the upper airway or other vital neck structures (carotid artery etc)
Reason for urgency	<ul style="list-style-type: none"> • Partial occlusion of the upper airway is associated with the occurrence of sudden death
Associated tumour type/s	<ul style="list-style-type: none"> • Any malignancy invading upper airway structures, particularly: anaplastic thyroid; head and neck; lung cancer; others
Investigation	<ul style="list-style-type: none"> • Definitive imaging of the neck structures with either MRI or CT scan • Direct visualization with endoscopy or laryngoscopy.
Management	<ul style="list-style-type: none"> • Triage Clinician to discuss with attending oncologist to confirm medical emergency • If situation is emergent, oncologist to determine whether to: <ul style="list-style-type: none"> ◦ Advise patient to go to emergency ◦ Consult on call ENT surgeon or Respiriologist directly • The decision should be documented on the referral form and the documentation transferred/filed appropriately

Febrile Neutropenia

Presenting features/symptoms	<ul style="list-style-type: none"> • Fever defined as a single oral temperature $\geq 38.3^{\circ}\text{C}$, or an oral temperature of $\geq 38.0^{\circ}\text{C}$ or higher for more than one hour • An absolute neutrophil count less than 0.5×10^9 per L is defined as severe neutropenia • Symptoms and signs of inflammation may be absent in the severely neutropenic patient although cough, general malaise, lightheadedness/hypotension, UTI symptoms all may indicate a source of infection and may be present
Reason for urgency	<ul style="list-style-type: none"> • Without urgent treatment febrile neutropenia can rapidly deteriorate to septicemia and death
Associated tumour type/s	<ul style="list-style-type: none"> • Any type of cancer patient undergoing systemic chemotherapy
Action	<ul style="list-style-type: none"> • Site specific history and physical examination • Laboratory assessment (CBC, BUN, electrolytes, creatinine and LFT's) • Consider CXR, urinalysis, blood cultures
Management	<ul style="list-style-type: none"> • Notification of treating oncologist and/or urgent referral to Emergency Department

References:

Hughes WT, Armstrong D, Bodey GP, Bow EJ, Brown AE, Calandra T, et al. 2002 Guidelines for the use of antimicrobial agents in neutropenic patients with cancer. Clin Infect Dis 2002;34:730-51

National Comprehensive Cancer Network 2008 Clinical Practice Guidelines in Oncology; Prevention and treatment of Cancer Related Infections. Available: www.nccn.org