

In Practice

Management of Fever & Infection in Cancer Patients

by Larry Broadfield, Manager, Provincial Managed Systemic Therapy Program

One of the most common side effects of cancer treatment (both chemotherapy and radiation therapy) is depression of the myeloid cell production in the bone marrow, or myelosuppression.

An important form of myelosuppression in most cancer patients is granulocytopenia, or reduction in the granulocytes (white blood cells responsible for fighting bacterial infections). When white blood cells, and granulocytes in particular, are at their lowest (the nadir), patients are at particular risk of contracting bacterial infections. Risk begins when the granulocyte count falls below $0.5 \times 10^9 / L$ and increases rapidly as levels decrease. Without adequate cells to fight an early infection, myelosuppressed cancer patients may progress to a full-blown and life-threatening infection. It is important that we pay very close attention to the initial signs of a possible infection, whenever these signs occur. The usual first sign is a fever.

Most patients on active myelosuppressive treatment measure their body temperature at home, and they are instructed to seek help as soon as they notice a small fever ($38^{\circ}C$ or $100^{\circ}F$). They should call their family physician or oncology team for direction. Early treatment is very important before a possible infection becomes a full-blown clinical infection. If they have a fever, they will require assessment either in the clinic or Emergency Room (ER). In the ER, cancer patients with febrile neutropenia are triaged as high priority.

Typically, when a patient presents with fever, low white count, and possible infection (i.e. febrile neutropenia), the treating physician takes blood cultures (two samples from peripheral and central IV lines) and a urine culture for laboratory testing. Patients with febrile neutropenia can have unusual features of infection. Often, the fever is not accompanied by the usual signs of focal infection symptoms, since inadequate numbers of white blood cells reduce the signs of inflammation. In addition to drawing blood and urine samples for culture, the treating physician should conduct a thorough physical exam and obtain a chest x-ray. The physical exam should include the perioral and perirectal areas, skin,

sinuses, respiratory tract, oral mucosa, and any indwelling catheters. A digital rectal exam should NOT be done on neutropenic patients.

While awaiting the lab test results, the patient should be started on empiric antibiotic therapy. Antibiotic agents, which cover a broad-spectrum of infecting bacteria, are started, then the drugs are modified once the lab tests identify which organisms are responsible for the infection, and to which antibiotics these bacteria best respond. Antibiotic therapy can then be revised to more specific antibiotics, once the culture and sensitivity (C&S) test is returned on any isolated bacteria.

Special circumstances:

Patients with indwelling central venous catheters (eg. Hickman lines or Portacath lines in the chest, or PICC lines in the arm) are at greater risk of both local and systemic infections. Many patients on active chemotherapy have these lines in place to facilitate drug and blood product administration. Cancer patients who present with soft tissue infections may have a much more serious course of infection than non-cancer patients. Also, many cancer patients on active treatment may be taking prophylactic antibiotics, which must be taken into consideration when managing an acute infection with fever.

For assistance, contact the on-call Infectious Diseases specialist, to initiate a focused treatment plan for the patient. The phone number to contact the Infectious Disease department at the QEII Health Sciences Centre is 473-5553. The family physician or Emergency Room should also inform the patient's oncologist. It is important to be aware that fever and suspected infection may require a greater urgency

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For cancer patients, with reduced blood cell counts, the empiric antibiotics of choice are Gentamicin 6mg/Kg IV q24h and Piperacillin 3g IV q6h. (For patients with known true allergy to penicillin, Ceftazadime 2g IV q8h may be substituted.)

Cancer Care Nova Scotia is a program of the Department of Health. Its mandate is to evaluate, coordinate and strengthen the cancer system in Nova Scotia.

Cancer Care Nova Scotia works with and supports professionals and stakeholders in the health care system to bring about patient-centred change. Its ultimate goal is to reduce the burden of cancer on individuals, families, communities and the health care system.

In Practice is an insert for **Cancer Care Nova Scotia's** bi-monthly newsletter. It is written specifically for primary care practitioners with information that we hope will make a difference to your cancer practice.

Please contact Anne Murray, Education Coordinator, **Cancer Care Nova Scotia**, by phone at (902) 473-3781 or by email at ccavm@qe2-hsc.ns.ca with comments or suggestions for future topics.



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Chemotherapy for advanced colorectal cancer with a new drug regimen- Irinotecan, Fluorouracil & Leucovorin, or IFL for short- has been introduced in recent months. This new combination has shown exciting improvements in the survival of patients with this advanced disease. However, this combination is particularly associated with febrile neutropenia, in combination with severe diarrhea. Patients are advised of the risks, and provided with Loperamide and, sometimes, prophylactic antibiotics. Urgent care is especially necessary for this group, since a mild fever with a little diarrhea can quickly escalate into severe diarrhea and full-blown septicemia.

If your patient is on this combination and reports either diarrhea or fever, they must be treated right away. Loperamide 2mg q2h PO is given around the clock until 12 hours past the last loose BM. If this is not effective, Atropine 0.4-1.0mg IV or SC may be added to control acute diarrhea events. **DO NOT LIMIT THE LOPERAMIDE TABLETS TO 8 OVER A 24 HOUR PERIOD!** Febrile neutropenia must be treated with empiric antibiotics right away. Consider a hospital admission, until the symptoms settle down- many patients experience rapid, and serious, symptom escalation while at home. This syndrome of rapidly escalating diarrhea and fever can cause serious morbidity, or, if not treated soon enough, fatality!

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of care, based upon many different variables, including the type of cancer, the type of cancer treatment underway and the actual infecting agent(s) [gram positive or negative bacterial, or viral or fungal pathogens].

Timely management of fever and suspected infection for a neutropenic cancer patient could be the difference between life and death. Health caregivers in every community take this issue seriously. Urgent treatment is necessary. It should not be delayed until the fever gets worse or until the culture results are available. This is one of the most valuable services needed by cancer patients in every community.

More details on the continuing management of febrile neutropenia, in high risk and low risk patients, will be discussed in a future issue of In Practice.

Survey results from several Nova Scotia hospitals indicated that a number of them do not routinely stock the agents used for empiric therapy. It does your patient no good to show up at the Emergency Room, only to find that they cannot be treated there. Speak to your local hospital about stocking minimal supplies of the drugs Gentamicin, Piperacillin and Ceftazidime, in case a local cancer patient presents with febrile neutropenia.