



The Effects of Chemotherapy on Leukopenia and Infection Risks in Cancer Patients

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DESCRIPTION

Chemotherapy is a common treatment for cancer that uses drugs to kill or stop the growth of cancer cells. However, chemotherapy can also affect normal cells, especially those that divide rapidly, such as White Blood Cells (WBCs). WBCs are essential for the immune system to fight infections and diseases. Leukopenia is a condition where the number of WBCs in the blood is lower than normal. Neutropenia is a type of leukopenia where the number of neutrophils, a type of WBC that destroys bacteria, is lower than normal. Leukopenia and neutropenia can increase the risk of infection in cancer patients, which can lead to serious complications and even death.

The degree and duration of leukopenia and neutropenia depend on several factors, such as the type and dose of chemotherapy, the type and stage of cancer, the patient's age and general health, and the presence of other conditions or treatments that affect the bone marrow, where WBCs are produced. Chemotherapy can cause leukopenia and neutropenia by damaging or destroying the bone marrow cells or by interfering with their growth and maturation. The lowest level of WBCs usually occurs 7 to 10 days after chemotherapy, which is called the nadir. The WBC count usually recovers within a few weeks after chemotherapy, but it may take longer for some patients or with some types of chemotherapy.

Leukopenia and neutropenia do not cause any symptoms by themselves, but they can make the patient more susceptible to infections. The risk of infection is higher when the WBC count is lower than 3.0×10^9 and when the neutrophil count is lower than 1.9×10^9 . The risk increases as the WBC and neutrophil levels drop further and as they remain low for longer periods. An infection can occur in any part of the body, but it is more common in the skin, mucous membranes, digestive tract, or respiratory tract. The most common signs and symptoms of an

infection include fever, chills, swelling, redness, pain, mouth sores, sore throat, and cough, shortness of breath, urinary problems, diarrhea, or rectal problems.

The prevention and treatment of infections in cancer patients with leukopenia and neutropenia are crucial to avoid serious complications and improve survival. The prevention strategies include avoiding exposure to potential sources of infection, such as sick people, crowds, animals, raw foods, or unclean water, maintaining good hygiene and oral care, using protective equipment such as gloves or masks when needed, and receiving appropriate vaccinations and prophylactic antibiotics or antifungals as prescribed by the doctor.

The treatment strategies include

- Monitoring the WBC count regularly
- Reporting any signs or symptoms of infection promptly
- Receiving prompt empirical antibiotic therapy for suspected or confirmed bacterial infections
- Receiving antifungal therapy for suspected or confirmed fungal infections
- Receiving supportive care such as fluids, electrolytes, blood transfusions or growth factors as needed
- Adjusting or delaying chemotherapy doses if necessary

Chemotherapy can cause leukopenia and neutropenia in cancer patients by affecting the bone marrow production of WBCs. This can increase the risk of infection in these patients, which can be life-threatening if not prevented or treated promptly. Therefore, it is important for cancer patients receiving chemotherapy to be aware of their WBC count and infection risk; to follow preventive measures to avoid exposure to potential sources of infection; to seek medical attention immediately if they develop any signs or symptoms of infection; and to receive appropriate antibiotic or antifungal therapy and supportive care as indicated.

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