

Nursing Alchemy: Transforming R-CHOP Information Into Essentials

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A combination of rituximab, cyclophosphamide, doxorubicin, vincristine, and prednisone (R-CHOP) is a first-line combination chemotherapy regimen for diffuse large B-cell lymphoma that has many nursing implications. Understanding the mechanisms of these chemotherapy agents helps in understanding the administration and management of clinical care.

AT A GLANCE

- Infusion-related reactions are expected with rituximab, and management strategies include premedications, administration rate adjustment, and emergency medical management as needed.
- R-CHOP for diffuse large B-cell lymphoma has the potential to cause neutropenia, so all patients are evaluated to determine whether they meet the criteria for the addition of pegfilgrastim as primary prophylaxis.
- The agents in R-CHOP all have unique mechanisms; therefore, different toxicities are associated with each medication.

KEYWORDS

diffuse large B-cell lymphoma; R-CHOP; chemotherapy side effects

DIGITAL OBJECT IDENTIFIER

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Diffuse large B-cell lymphoma (DLBCL) is the most common type of non-Hodgkin lymphoma. It is characterized by symptoms that are often referred to as B symptoms, which include fevers, night sweats, and significant, unintentional weight loss (Padala & Kallam, 2023). On physical examination, patients often present with enlarged lymph nodes, leading to further evaluation via lymph node biopsy, immunohistochemistry, flow cytometry, fluorescence in situ hybridization, and imaging, such as a positron-emission tomography-computed tomography (PET-CT) scan. These tests are necessary for diagnosing the subtype of DLBCL, which is based on the presence of certain genetic variants (*MYC*, *BCL2*, *BCL6*) and the location of nodal involvement (e.g., above and/or below the diaphragm, with or without splenic or other extranodal involvement) (Candelaria & Dueñas-Gonzalez, 2021).

The goal of DLBCL treatment is curative, and the preferred standard-of-care regimen, regardless of staging, is a combination of rituximab, cyclophosphamide, doxorubicin, vincristine, and prednisone that is commonly referred to as R-CHOP. R-CHOP can be administered with or without radiation therapy, and the cycles vary depending on the cancer stage. Because of the anthracycline component, R-CHOP is not an appropriate treatment for patients who have poor left ventricular function, are frail, are aged older than 80 years with comorbidities, or have been treated with another anthracycline-containing regimen (National Comprehensive Cancer Network [NCCN], 2023c). This article provides an overview of R-CHOP therapy and its toxicities, side effects, and administration.

Prior to beginning treatment with R-CHOP, patients will complete baseline screening and laboratory tests, including an echocardiogram, complete blood count, comprehensive metabolic panel, uric acid level, lactate dehydrogenase, hepatitis B serologies, and any other pertinent laboratory tests ordered by the oncologist. In addition, some of these tests are ordered prior to each cycle to assess whether treatment is appropriate for the patient based on acceptable laboratory test values.

Antiemetics

R-CHOP is a highly emetogenic regimen. More than 90% of patients who receive R-CHOP will experience emesis if they do not receive prophylactic antiemetics (NCCN, 2023b). Given this high emetogenic potential, the antiemetic regimen can include three to four medications that have different mechanisms of action to prevent emesis, such as NK₁ receptor antagonists,