

## Lymphoma: Review Questions

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### QUESTIONS

Choose the single best answer to each question.

- 1. A 40-year-old woman has cervical lymphadenopathy. Results of a biopsy reveal non-Hodgkin's lymphoma. A staging computed tomography (CT) scan of the chest shows no abnormalities. An abdominal CT scan reveals a mesenteric mass, which measures 5 x 5 cm in diameter. A bone marrow examination is performed and is negative for lymphoma. The patient's chance of a cure will be greatest if which of the following types of lymphoma is present?**
  - A) Large B-cell lymphoma (large transformed cell lymphoma)
  - B) Mantle cell lymphoma
  - C) Peripheral T-cell lymphoma
  - D) Small cleaved cell lymphoma
  - E) Small noncleaved cell lymphoma (Burkitt's lymphoma)
- 2. The potential value of autologous stem cell or bone marrow transplantation is most severely compromised by potential bone marrow involvement in which of the following types of lymphoma?**
  - A) Anaplastic large cell lymphoma
  - B) Hodgkin's disease
  - C) Large B-cell lymphoma (large transformed cell lymphoma)
  - D) Peripheral T-cell lymphoma
  - E) Small cleaved cell lymphoma
- 3. A 53-year-old woman undergoes endoscopy because of persistent dyspepsia. No mass lesions are seen, but a biopsy of an area of gastritis is obtained. Pathologic results report a mucosally associated lymphoid tumor (ie, gastric MALToma). A staging CT scan is performed, which shows no evidence of disease in the abdomen. A chest CT scan is also negative for lymphoma. Which of the following is the best therapy for this lesion?**
  - A) Antibiotic therapy directed against *Helicobacter pylori*
  - B) CHOP chemotherapy (cyclophosphamide, doxorubicin, vincristine, prednisone)
  - C) COP chemotherapy (cyclophosphamide, vincristine, prednisone)
  - D) Gastrectomy followed by radiation therapy
  - E) Gastrectomy with lymph node dissection
- 4. An 18-year-old woman with a right cervical lymph node has nodular sclerosing of Hodgkin's disease. She is asymptomatic. Staging, limited to CT scans and a bone marrow biopsy, finds no other evidence of disease, and she receives radiation therapy to a mantle port for presumed stage IA disease. Three years later, she is found to have a mediastinal mass; results of mediastinoscopy confirm recurrent Hodgkin's disease. She receives 6 cycles of ABVD chemotherapy (doxorubicin, bleomycin, vinblastine, dacarbazine) and achieves a second complete remission. Eight months later, an axillary node is noted on physical examination, and biopsy results show recurrent Hodgkin's disease. Staging CT scans are negative for Hodgkin's disease, as is a bone marrow examination. Which of the following is the most reasonable next step in treatment of this patient?**
  - A) Chemotherapy with a combination that is not cross resistant to ABVD chemotherapy, such as MOPP (mechlorethamine, vincristine, procarbazine, and prednisone)
  - B) Chemotherapy with a single agent such as vinblastine or cyclophosphamide given with palliative intent
  - C) High-dose chemotherapy in conjunction with autologous stem cell transplantation with curative intent
  - D) Radiation therapy to the axilla
  - E) No further treatment

(turn page for answers)

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## EXPLANATION OF ANSWERS

1. (A) **Large B-cell lymphoma (large transformed cell lymphoma).** Peripheral T-cell lymphoma and large B-cell lymphoma (large transformed cell lymphoma) are both intermediate grade lymphomas, according to the Working Formulation of Non-Hodgkin's Lymphomas. For intermediate grade lymphomas, cure rates with initial chemotherapy are 40% to 45%.<sup>1</sup> Patients with anaplastic large T-cell lymphoma have a prognosis similar to that of patients with large B-cell lymphoma, whereas patients with peripheral T-cell lymphoma have a cure rate nearer to 20%.<sup>2</sup> Mantle cell lymphoma is a small cell lymphoma distinct from diffuse, small cleaved cell lymphoma. Although response rates to initial therapy are excellent, relapses often occur, and cures with any treatment—including stem cell transplantation—are extremely rare. Small cleaved cell lymphoma is a slowly progressive, indolent, incurable lymphoma except in very rare patients with stage I disease, who may be cured by radiation therapy. This patient has stage III disease. Small non-cleaved cell lymphoma (Burkitt's lymphoma) is a high-grade lymphoma with a 20% to 40% chance of cure with aggressive combination chemotherapy. However, survival in the absence of a complete remission is usually quite brief.
2. (E) **Small cleaved cell lymphoma.** Whenever lymphoma involves the bone marrow, there is a high risk that peripheral blood stem cells will also be contaminated by tumors. For large B-cell lymphoma, Hodgkin's disease, anaplastic large cell lymphoma, and peripheral T-cell lymphoma, the incidence of bone marrow involvement ranges from 5% to 20%. Even in these histologic types of lymphoma, a bone marrow examination is necessary to rule out lymphomatous involvement prior to harvesting stem cells for purposes of transplantation. However, the incidence of bone marrow involvement in small cleaved cell lymphoma is dramatically higher; 60% to 70% of cases have involvement of the bone marrow on microscopic examination. Additionally, when the bone marrow does not appear to be involved in small cleaved cell lymphoma, about two thirds of cases have bone marrow involvement when assessed by molecular genetic studies looking for *bcl-2* or heavy chain gene rearrangement.<sup>3</sup>
3. (A) **Antibiotic therapy directed against *Helicobacter pylori*.** The most common gastric lymphoma is large B-cell lymphoma, which was formerly treated with gastrectomy until it became clear that aggressive combination chemotherapy with radiation therapy was the treatment of choice for stage I disease.

However, this patient has a gastric MALToma, for which there is a high association with *H. pylori*. Although it may be counterintuitive to treat a malignancy with antibiotic therapy, that approach has been associated with remission rates higher than 70%, with many complete remissions becoming cures. Because this approach poses minimal toxicity, it is the initial treatment of choice.<sup>4</sup> If a patient has disease outside the stomach, or if a patient fails to respond to therapy directed against *H. pylori*, the most appropriate therapy would be the combination chemotherapy used for low-grade lymphoma.

4. (C) **High-dose chemotherapy in conjunction with autologous stem cell transplantation with curative intent.** Because this patient was initially treated with mantle radiation, repeated use of radiotherapy would be limited in terms of dosing; radiation therapy to the axilla is therefore not an option. Single-agent chemotherapy could be palliative, but better options exist. Combination chemotherapy might return the patient to remission and would be the second-best choice, but the chance of a long-term response to such therapy is slight. If the only treatment options were palliative, no therapy of an asymptomatic patient would be acceptable. However, in this patient with Hodgkin's disease, reaching a cure is still possible; since the bone marrow is negative for the disease, high-dose chemotherapy in conjunction with autologous stem cell transplantation is an excellent option.<sup>5</sup>

## REFERENCES

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