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HEMATOLOGY BOARD REVIEW MANUAL

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Acute Nonlymphocytic Leukemia and Allogeneic Transplantation

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INTRODUCTION

Acute nonlymphocytic leukemia (ANLL) represents approximately 85% of adult acute leukemias. The annual incidence is 2.25 per 100,000, which represents an incidence of slightly more than 5000 cases per year in the United States.¹ The past 3 decades have seen substantial progress in the management of ANLL. In 1970, remission rates for ANLL were 50% to 60%; among patients achieving a complete remission, long-term disease-free survival was expected in only 5% to 10% of patients.² Cytosine arabinoside and daunorubicin had been established as effective induction therapy of ANLL. The major problem that limited the achievement of a complete remission was the inability of patients to survive the period of chemotherapy-induced bone marrow aplasia long enough for the chemotherapy to be effective. Advances of the 1970s and early 1980s, including the availability of platelet support, the introduction of more effective antibiotics, and the development of clinical algorithms that include therapy for presumed fungal infections, have decreased the death rate during the early treatment of ANLL. As a result, by 1990, complete remission rates of 80% were frequently reported in patients younger than 50 years.

The development of allogeneic transplantation during the 1970s meant that cure of leukemia was a meaningful prospect for the 40% to 50% of patients who achieved a

complete remission and who also had a human leukocyte antigen (HLA)-matched sibling. In the 1980s, the introduction of consolidation therapy, including the use of high-dose cytosine arabinoside (HIDAC), was associated with cure rates as high as 50% in patients younger than 40 years who had achieved a complete remission. The introduction of autologous transplantation into the therapeutic mix meant that for some patients, 3 potentially curative strategies were available from which to choose.

Other notable advances during the past decades have included the development of specific therapy for acute promyelocytic leukemia, the recognition of the prognostic implications of specific chromosomal abnormalities, and the broadening of the potential donor pool for allogeneic transplantation through the use of matched unrelated donors. Numerous clinical controversies still exist in the management of ANLL. However, over the space of a few decades the diagnosis of ANLL has gone from being an almost certain sentence of death to a disease associated with cure for a large portion of patients.

CLINICAL PRESENTATION AND PROGNOSTIC FEATURES

INITIAL CASE PRESENTATION

A 26-year-old woman seeks medical care because of fatigue and increased bruising. She has been in good