CHAPTER

18

Hematological Cancers

I. INTRODUCTION

Cancers that are not solid tumors include hematological cancers, such as the leukemias and the myelodysplastic syndromes (MDS). Some of the hematological cancers are listed in Table 18.1 (1). Hematological cancers are sometimes called *liquid tumors* (2,3,4). This chapter concerns only the leukemias and the MDS. Other hematological cancers include multiple myeloma (5) and the lymphomas (6). This chapter explains methods for diagnosing the hematological cancers, as well as staging methods, biomarkers, and endpoints.

Acute lymphocytic leukemia (ALL) can be cured using combination therapy with dexamethasone, vincristine, L-asparaginase, and daunorubicin (7). *Chronic lymphocytic leukemia* (CLL) can be cured with the combination of fludarabine, cyclophosphamide, and rituximab (anti-CD20 antibody). *Acute myeloid leukemia* (AML) can be cured with the combination of cytarabine and daunorubicin (or idarubicin). *Chronic myeloid leukemia* (CML), which is diagnosed by Philadelphia chromosome, can be cured with imatinib, dasatinib, or nilotinib (8).

Relapse-free survival (RFS) is an endpoint commonly used for the hematological cancers. In one report of a leukemia clinical trial, this endpoint was defined as, "[r]elapse-free survival (RFS) was determined only for patients who achieved a complete remission, and it was defined as the time from the date of complete remission until relapse, with deaths in

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