



### ROBIN FOÀ

Divisione di Ematologia,  
Dipartimento di Biotecnologie  
Cellulari ed Ematologia,  
University "La Sapienza",  
Rome, Italy

The biologic, clinical and therapeutic setting is nowadays such that risk factors are constantly changing and progressively increasing in patients suffering from different onco-hematological conditions. In addition to situations that are well known or that are gradually being recognized related both to the underlying disease and to treatment, such as neutropenia, neutrophil dysfunction, mucosal damage, concomitant monocytopenia and lymphopenia, abnormalities within the host cellular and humoral compartments, impairments in cytokine networks, alterations in T lymphocytes/tumor interactions, crosstalks between neoplastic cells and accessory cells, etc, over the last few years we are witnessing important changes in the overall management of patients with acute and chronic hematological malignancies. Historically, the categories at risk were represented by patients with acute leukemia and patients undergoing an allogeneic stem cell transplant. In both, the likelihood of eradicating the disease requires necessarily a myeloablative therapeutic strategy, complicated in the allografted patients by the risks of graft-versus-host disease (GVHD), the required immunosuppressive treatment and the documented role that cytokines may play in the development of acute GVHD.

Considerable changes have occurred in recent years. From the identification of "new" diseases at risk (e.g. lymphomas occurring in HIV+ individuals, EBV-associated lymphoproliferative disorders occur-

ring in allografted patients, etc), to the progressive and constant increase in allotransplant procedures (annual increases of about 10%), to the development and progressively more extended use of new transplant procedures (cord blood, MUD, mismatch, mini-transplant, DLI), to the development of new drugs that can induce profound immunosuppression (e.g. CD4 lymphopenia in patients with chronic lymphocytic leukemia (CLL) treated with Fludarabine), to the clinical use of certain monoclonal antibodies (MoAb) (e.g. Campath-1H - anti-CD52 - which induces a marked T and NK cell depletion), to the combined use of chemotherapy plus MoAb (e.g. Fludarabine + Campath-1H). All the above, further affect the immune surveillance status of the affected patients leading to an increase in the risk of infective complications.

These developments are associated with other more general considerations. Within these: 1) the progressive recognition of categories of patients with an unfavorable prognostic likelihood for whom an aggressive approach is required; 2) the growing use aggressive and often potentially ablative therapies in diseases for which for many years the approach has been less aggressive or indeed conservative; 3) the extended use of transplant procedures in older patients; 4) the constant improvement in mean life expectancy of the general population, as well as the "biologic" age of patients; thus, the progressive changes in the definition of "old age"; 5) the issue of living with cancer

**Table 1. Risk situations in onco-hematological patients.**

- Neutropenia
- Mucosal damages
- Concomitant monocytopenia and lymphopenia
- Dysfunctions of the host cellular immunity → *T and cytotoxic lymphocytes, dendritic cells*
- Dysfunctions of the humoral immunity
- Alterations in cytokine networks
- Crosstalk between host immune cells and neoplastic cells
- Impact of treatment

**Table 2. Changes in recent years in the management of onco-hematological patients**

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- Recognition of “new” disease entities
  - Increased life expectancy
  - Much improved biologic age of population
  - Living with cancer and quality of life
  - “Earlier” diagnoses
  - More precise diagnostic work-up
  - Identification of risk groups based on an extended biologic work-up at presentation → *prognostic stratification*
  - New therapeutic strategies
  - More aggressive treatment
  - Treatment of “older” patients
  - Much broadened and extended transplant procedures
  - Changes in approach to “old” diseases
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and of the quality of life. In this respect, a paradigmatic example is represented by the change in our overall approach to patients with B-cell chronic lymphocytic leukemia (CLL), the most frequent leukemia in the western hemisphere, and, to some extent, with non-Hodgkin's lymphoma, multiple myeloma and chronic myeloid leukemia. Taken together, this has led, on the one hand, to an increase in the categories of onco-hematological patients at risk of infective complications and to a major focus on the immune compartment of the affected patients, and, on the other hand, to an overall broadening of the infective scenario.