Journal of Oncology

Hindawi

Special Issue on

Successes and Challenges for Diagnosis and Therapy of Acute Leukemia

CALL FOR PAPERS

Acute leukemia is a malignant disease of the blood and bone marrow. It arises from a defect in white blood cells within the bone marrow, which divide out of control, causing proliferation of immature and nonfunctional cells that are subsequently released into the bloodstream and impair all other blood cells.

Acute Leukemia is categorized based on whether the abnormal blast cells have lymphoid or myeloid origin. Acute Lymphoblastic Leukemia (ALL) is the most common childhood malignancy, whereas Acute Myeloid Leukemia (AML) mostly affects older adults and children before the age of 2 years.

Treatment and prognosis depend upon the type of leukemia, severity, and symptoms. In general, the standard treatment options include chemotherapy, radiation therapy, and stem cell transplant. Current treatments allow 5-year overall survival rates of about 60% and 90% in children and 30-40% in adults, for AML and ALL, respectively. However, the high incidence of refractory or relapsed disease in both children and adults still remains a great challenge. In recent years, leukemia therapy has been undergoing profound and incessant changes, due to the introduction of targeted therapies, consisting of molecules against genetic or epigenetic targets in the cancer cells, and immunotherapy, including chimeric antigen receptors (CARs) targeting cell surface markers or monoclonal antibodies.

The development of next generation sequencing (NGS) technologies has revolutionized the ability to examine cancer cells and to identify genomic mutations and structural alterations with extraordinary detail. This has changed leukemia classification, diagnosis, and therapy profoundly. Indeed, recent studies have described novel molecularly distinct leukemia subtypes, for instance, BCR-ABL1-like, ERG/DUX4-, ZNF384-, and MEF2D-rearranged leukemias. Importantly, some of these leukemia subtypes have a clear potential for novel therapeutic intervention. Furthermore, genomic profiling has improved our understanding of the mechanisms responsible for leukemia onset and relapse. To this regard, the identification of genetic mutations that occur before birth and influence the susceptibility to childhood leukemias is considerable. These advances in the genomics of acute leukemia also open new therapeutic options, including immunotherapy and novel targeted molecules, which can be employed as single agents or in combination with conventional chemotherapy, to tailor less detrimental treatments.

Therefore, the major aim of this special issue is to discuss how recent studies have impacted our knowledge of the biology of acute leukemia and the consequent revolution of leukemia management, including diagnosis and treatment challenges. We invite review articles that describe advancement in both ALL and AML management as a result of the identification of novel leukemia subtypes and treatment options and original research papers focused on various aspects of the above-mentioned area.

Potential topics include but are not limited to the following:

- Novel Leukemia subtypes: consequences for disease classification and clinical management
- Novel genetic alterations in acute leukemia as potential targets and biomarkers for disease monitoring
- Genetic susceptibility to leukemia: which are the key players?
- Advances in understanding the mechanisms of leukemia relapse
- Novel treatment options to fight acute leukemia: immunotherapy or targeted therapies?

Authors can submit their manuscripts through the Manuscript Tracking System at https://review.wiley.com/submit?specialIssue=819147.

Papers are published upon acceptance, regardless of the Special Issue publication date.

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Submission Deadline
Friday, 28 June 2019

Publication Date
November 2019