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Editorial

"Precision medicine" in hematology

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Hematological diseases are a heterogeneous group of disorders originating from the hematopoietic stem cells with diverse etiology, pathogenesis, and prognosis. During the past decades, they have been studied by microscopy, clinical chemistry, immunophenotyping, conventional cytogenetics, polymerase chain reaction, different high-throughput technologies including next-generation sequencing (NGS), digitalized imaging, and so on. Systemic application of these techniques has permitted more precise and reproducible diagnoses,[1] risk stratification, and tailored therapeutic strategies.

Until recently, hematological malignancies are treated with highly cytotoxic drugs, radiation, and/or hematopoietic stem cell transplantation with many short-term and long-term side effects. Moreover, despite the improved response and survival rates, drug resistance and relapse remain major problems.

"Precision medicine" is a revolution in health-care systems encompassing optimal diagnosis, prognostication, and therapy decisions in an "individualized" manner.[2] "Precision medicine" in hematology employs disease-specific and patient-related issues to facilitate management of different hematological disorders. NGS not only allows to sequence the whole exome of the leukemic or lymphoma cells to search for gene expression profiles from the blood but also helps in therapeutic decision-making to effect so-called "precision *medicine*." Targeting different mutations (*BCR/ABL1, PML/RARA, and NPM/ALK*) have therapeutic advantage over convention chemotherapy in diseases such as – CML, APL, and ALK +ve lymphomas, maximizing benefit while limiting toxicity.

Increasing knowledge of clinical genomics has accelerated the routine care of patients suffering from different benign and malignant hematological disorders.[3] However, the clinicians must carefully consider the ethical issues, especially those related to the uncertainty of the results of genomic testing in many cases.

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