Cytogenetics Drives Prognosis in AML and APL

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To keep up with details of cytogenetic and molecular reports and their implications for your patient's disease course, attend the Education Sessions on Acute Myelogenous Leukemia (AML) (today from 9:30 – 11:00 a.m. and 2:00 – 3:30 p.m.) and Acute Promyelocytic Leukemia (APL) (today from 7:30 – 9:00 a.m., and tomorrow from 9:30 – 11:00 a.m.). Although the last few decades have brought great advancements in the treatment of AML and APL, we are continuing to discover new features of these leukemias, not only relating to therapy, but also to the basics of these diseases — establishing a diagnosis and formulating a prognosis. These sessions on AML and APL will highlight the most recent advances in diagnostic testing, newest predictors of disease behavior, and the latest progress in the quest for the cure.

In the AML session, Dr. Clara Bloomfield will discuss the applicability of cytogenetics and molecular mutations not only in disease prognosis, but also in determining therapy and documenting disease remission. Dr. Bloomfield will also highlight selected aberrantly expressed/mutated genes, discuss their value in providing further prognostic information, and focus on gene aberrations found in two of the largest cytogenetic groups of patients with AML, those with a normal karyotype and those with core-binding factor.

Dr. Donald Small will provide an overview of FLT3, a tyrosine kinase receptor which is mutated in approximately one-third of AML patients. He will discuss molecular aspects, clinical applications, FLT3 signaling, types of mutations, prognostic implications, and current therapeutic applications of FLT3 targeted therapy.

Finally, Dr. Wendy Stock will provide case-based presentations probing the controversial topic of AML therapy in elderly patients. Compared with younger patients, elderly patients with AML have a worse prognosis. They have more associated unfavorable cytogenetics, chemotherapy resistance, poor performance status, and therefore worse outcomes compared with younger patients. Numerous questions come to the forefront when dealing with an elderly AML patient such as agents to use, whether to provide post remission therapy, and, most importantly, whether to even initiate treatment. Dr. Stock will elaborate on these topics and provide the latest evidence-based approach to the management of AML of the elderly.

Moreover, if you want a comprehensive review of APL, you must attend the APL Education Session, which will provide an overview of the epidemiology, pathobiology, and the latest treatment options for this curable leukemia. We have certainly made tremendous advancements in APL, which currently has complete remission rates of up to 95 percent with regimens containing all-trans retinoic acid (ATRA). Dr. Francesco Lo-Coco will discuss the molecular features of APL, including *PML/RARα* fusion gene, expression of CD33, absence of multidrug resistance-related phenotype, and mutations in the FLT3 receptor. He will focus on these molecular abnormalities as they relate to therapy, diagnosis, and monitoring of disease remissions. He will be followed by Dr. Miguel Sanz, who will provide an evidence-based approach to the management of this highly curable leukemia. He will discuss frontline and consolidation therapy, supportive care measures, and the treatment of APL in special situations (i.e., elderly, children, and pregnant women). He will also discuss the evidence for using arsenic trioxide (ATO), gemtuzumab ozogamicin, and stem cell transplant in APL.

Lastly, Dr. Raul Ribeiro will discuss the epidemiology of APL and the limitations to treatment for this highly curable leukemia in developing countries. For further insight into the latest treatment options for APL, make sure you attend the oral session by Dr. Yuan-Fang Liu (abstract # 565) who will report on the exciting results of a cohort study of ATRA and ATO in the front-line therapy of APL. Also, look for Dr. Norio Asou's poster (abstract # 2009) discussing the results of a randomized study that examined the role of maintenance chemotherapy in APL patients who are negative for *PML-RARα* following intensive consolidation.