

Cancer News: Patients Now Living Longer with Chronic Myeloid Leukemia due to Improved Testing

Plainview, NY May 22, 2010 -- For people with Chronic Myeloid Leukemia (CML), critical test results can get lost in translation. "Currently if a patient's blood sample is sent to two different labs, both may yield different results," says Dr. Shashi Pawar, Director of Genetics for Acupath Laboratories, Inc. Acupath is accredited by the Joint Commission and College of American Pathologists and is a leader in providing physicians and patients with accurate and innovative pathologic, molecular and cytogenetic analyses.

This discrepancy is vexing enough that U.S. laboratories began a revolutionary push to standardize the Polymerase Chain Reaction PCR (PCR) test for CML last year. "In order to monitor progress, there should be consistency," says Dr. Pawar. She recommends that until the metric is harmonized; patients and doctors use the same laboratory for each analysis. For over three years Acupath has been offering the BCR/ABL1 RT-PCR, one of the most advanced and sensitive tests for monitoring leukemia cells.

What is CML and who is at risk?

Many people with Chronic Myeloid Leukemia (CML) do not have symptoms when it is diagnosed. The leukemia is often found when their doctor orders blood tests for an unrelated health problem or during a routine checkup. The leukemia cells tend to build up gradually, which is why symptoms may not manifest for a few years.

Chronic myeloid leukemia (CML), also known as chronic myelogenous leukemia, is a cancer that starts in the blood-forming cells of bone marrow. It then moves into the blood and can spread to other parts of the body. Most cases of CML occur in adults; 67 is the median age at diagnosis. Last year in the United States, 5,050 people were diagnosed with CML. Few patients qualify for a bone marrow transplant to treat the disease, which used to have an average survival rate of two years.

However, since the approval of new molecularly-targeted treatments, this formerly fatal cancer has become a manageable chronic condition with a five-year survival rate that approaches 90 percent. Furthermore, one very important reason why the CML is monitored is because of the invention of a wonder drug called Gleevec. With this, patients have the hope to survive many years, even more than ten years, without bone marrow transplant. With this test, doctors can monitor the efficacy of Gleevec.

How does the BCR/ABL1 RT-PCR test work?

CML patients have what is called the "Philadelphia Chromosome" (Ph chromosome). The BCR/ABL1 RT-PCR is a molecular test that measures this chromosomal abnormality, which is called the BCR-ABL1 gene. Most CML specialists opt for a QT-RT PCR. PCR means Polymerase Chain Reaction, RT stands for Real Time and QT means Quantitative, meaning it can quantify how many cells are affected by the mutation. A qualitative PCR merely returns a positive or negative answer. The BCR/ABL1 RT-PCR is an ultra-sensitive diagnostic tool: Molecular Geneticist can see one leukemia cell in as many as a million normal cells, even when doctors can't find the Philadelphia chromosome in bone marrow cells with genetic testing.

The results are very useful for illustrating trends, whether progress or retrogression. One recent advance is that many labs now give the logarithmic reduction, meaning the level of disease that existed during diagnosis, along with the current percentage of leukemia cells.

Why do the outcomes vary?

Because PCR results are not a ratio of leukemic cells to good cells, the test doesn't provide a total percentage of leukemic cells in the body. Depending on which control genes are used,

findings can vary from one lab to another. Another disparity manifests because the test must be done as soon as possible on the specimen to ensure the most accurate report.

Many labs in Europe and other countries use an International Scale. Early last year, some U.S. labs started this conversion so changes in the PCR numbers may be due to a change in reporting methods. That differential is another reason Dr. Pawar recommends consistency when choosing a lab so disease trends can be accurately monitored. It is also important when switching labs to have a new baseline test done.

Monitoring the disease with regular testing

"The BCR/ABL1 RT-PCR test provides the earliest possible diagnosis, the fastest detection of residual disease during treatment, and the most accurate method of tracking patients in remission," says Dr. Pawar. Advancements in the test allow doctors to identify abnormalities in the malignancy's initial stage, which offers a better prognosis since treatment can begin before the cancer advances.

Dr. Pawar advises it be performed every few months during treatment to assess response to therapy. Doctors can then track reductions in disease levels and determine if a patient's dosage or treatment needs to be adjusted.

About Dr. Shashi Pawar: A diplomat of the American Society of Human Genetics and member of the Association of Molecular Pathology, Dr. Shashi Pawar serves as director of Genetics for Acupath Laboratories, Inc. Her more than 20 of experience in molecular genetics and molecular pathology includes working as a consultant for the Center for Human Genetics in Cleveland; a technical director of Genova Diagnostics; and holding several diagnostic laboratory directorships. Published in dozens of selective medical journals, her educational background includes a Ph.D. in biochemistry from City University of New York. She also served a clinical molecular genetics fellowship at Yale University and a clinical cytogenetics fellowship at Columbia University.

Acupath Laboratories, Inc. located in Plainview, New York, is an anatomic pathology and cancer genetics laboratory. www.acupath.com