BCR-ABL TESTING FREQUENCY LOWER THAN NCCN RECOMMENDATIONS IN LAB NETWORK REVIEW OF CML PATIENTS

Carol Smyth, MB; Jason Bhan, MD; Tatiana Sozckina, MSc; Miyat Parihi, MSc; Niyati Parikh, MSc; Sarah Crane, PhD; and Jerad Radich, MD

Medivo, Inc., New York, NY; Clinical Research Division, Fred Hutchinson Cancer Research Center, Seattle, WA; Fred Hutchinson Cancer Research Center, Seattle, WA

INTRODUCTION:

The NCCN’s guideline recommendation for monitoring response to TKI therapy in CML is quantitative PCR BCR-ABL testing every 3 months for 3 years, and every 3-6 months after complete cytogenetic remission (CCyR) has been achieved. The goal of monitoring tests is to identify CML patients with suboptimal response or treatment failure who need therapeutic intervention to try to prevent disease progression.

METHODS:

We analyzed BCR-ABL lab test results for 5,446 CML patients, identified via ICD-9 codes in the nationwide Medivo Lab Exchange Database (Medivo Inc., New York, NY) between March 2011-February 2014. Patients were categorized by the number of annual BCR-ABL tests per year (<1, 1, 2, 3, and >4) and correlations between testing frequency and age, gender, and region were conducted. ANOVA was performed to assess differences in BCR-ABL testing frequency between male and female CML patients as well as patients <40 yrs. vs. >40 yrs. Regression analysis was performed to assess regional differences in testing frequency.

RESULTS:

Overall 79.4% (4,325 out of 5,446) of CML patients were tested at least once over the 3-year period. Across all CML patients, the average annual testing frequency was 1.6 tests/yr. The categories of testing frequency were: <1/yr, 1.21 (21%); 1/yr, 2.400 (44%); 2/yr, 1.079 (20%); 3/yr, 584 (11%); 4/yr, 160 (3%); and >4/yr, 42 (1%). Patients <40 yrs. (n = 2,832) were tested at a similar rate/yr (average test frequency 1.59 vs. 1.61, p = 0.6). Patients >40 yrs. (n = 2,614) were tested at a similar rate/yr (average test frequency 1.63 vs. 1.59, p = 0.4). Interaction between patients’ gender and age was not significant (p = 0.7).

BCR-ABL testing frequency varied significantly across regions. The lowest in the Midwest (1.37 tests/yr). Across all CML patients, the average annual testing frequency was 1.6 tests/yr. The categories of testing frequency were: <1/yr, 1.21 (21%); 1/yr, 2.400 (44%); 2/yr, 1.079 (20%); 3/yr, 584 (11%); 4/yr, 160 (3%); and >4/yr, 42 (1%). Patients <40 yrs. (n = 2,832) were tested at a similar rate/yr (average test frequency 1.59 vs. 1.61, p = 0.6). Male patients (n = 2,832) and female patients (n = 2,614) were tested at similar rates/year (average test frequency 1.60 vs. 1.61, p = 0.6).

CONCLUSIONS:

The NCCN guidelines support BCR-ABL testing every 3 months for the first 3 years of therapy, and every 3-6 months thereafter. Thus, in a cross section of CML patients, compliant monitoring would result in at least 2 tests per year. In this large group of CML patients, only 36% of patients had >2 tests/year, with only 5% having >4 tests/year. Our results show that ≈21% of patients had no tests reported over a three-year period. There were no significant differences in testing frequency seen in patients by gender or age. There were significant differences seen across US regions, with the highest rate in the West and the lowest in the Midwest. Future analyses should include longitudinal views of BCR-ABL results to highlight trends in responses to therapy and CCyR status, and payer type analyses to assess additional characteristics associated with low vs. high rates of BCR-ABL testing.

LIMITATIONS:

● Other potential patient factors were not studied, including stage of CML, therapeutic regimen, duration of disease, comorbidities and insurance status.

● Regional differences may reflect the locations of treatment centers of excellence, and require further study.

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● There were significant differences in testing rates seen across US regions, with the highest rate in the West and the lowest in the Midwest.

● Future analyses should include longitudinal views of BCR-ABL results to highlight trends in responses to therapy and CCyR status, and payer type analyses to assess additional characteristics associated with rates of BCR-ABL testing.