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POSTER

908A. OUTCOMES RESEARCH: MYELOID MALIGNANCIES

The impact of patient personality traits on adherence to tyrosine kinase inhibitor therapy in patients with chronic myeloid leukemia

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Abstract Chronic myeloid leukemia (CML) is a myeloproliferative neoplasm driven by the BCR::ABL1 fusion oncoprotein and treated with oral tyrosine kinase inhibitors (TKIs), which have significantly improved long-term survival. However, sustained therapeutic response is closely tied to patient adherence, with suboptimal adherence linked to inferior molecular and clinical outcomes. Despite known barriers to adherence, including side effects, cost, and disease-related distress, little is known about the role of patient personality traits in influencing adherence behavior, particularly among patients with CML.

To address this gap, we conducted a prospective pilot study evaluating the relationship between patient personality traits, medication adherence, and quality of life among individuals with CML receiving TKI therapy. Subjects were recruited from the University of California, Irvine Chao Family Comprehensive Cancer Center and the CML Buster Foundation national patient network. Eligible patients were adults (18 years of age and older) with chronic-phase CML on one of six FDA-approved TKIs: imatinib, dasatinib, bosutinib, nilotinib, ponatinib, or asciminib. A total of 42 English and Spanish speaking subjects completed structured interviews, which included the 8-item Morisky Medication Adherence Scale (MMAS-8), the 20-item International Personality Item Pool (Mini-IPIP) Five Factor Model personality inventory, and the European Organization of Research and Treatment of Cancer Quality of Life Questionnaire for Chronic Myeloid Leukemia-24 (EORTC QLQ-CML24). MMAS-8 scores were used to categorize patients into high (n=12, 28.57%), medium (n=18, 42.86%), and low (n=12, 28.57%) adherence groups. Personality trait scores and QLQ-CML24 raw scores were analyzed across adherence groups using one-way ANOVA or Kruskal-Wallis tests as appropriate per Shapiro-Wilk test ($\alpha=0.05$). Among the Five Factor Model traits (openness, conscientiousness, extraversion, agreeableness, and neuroticism), only neuroticism significantly differed between adherence groups (Kruskal-Wallis, $p=0.0315$), with higher neuroticism scores observed in patients with low adherence. Quality of life, as measured by the QLQ-CML24 raw score, also significantly differed across adherence categories (ANOVA, $p=0.0325$), with lower adherence associated with higher symptom burden and distress.

Simple linear regression revealed a significant negative correlation between MMAS-8 adherence scores and both neuroticism trait score (slope = -0.1969 , $r^2=0.1808$, $p=0.0050$) and QLQ-CML24 raw scores (higher raw score indicates a worse quality of life, slope = -1.255 , $r^2=0.1799$, $p=0.0051$). Multiple linear regression analysis confirmed that higher neuroticism trait (Estimate = -0.1864 , $p=0.0455$) and lower quality of life (Estimate = -1.012 , $p=0.0479$) were associated with lower adherence, while all other covariates were at a constant variable. Other personality traits were not significantly associated with adherence in either univariate or multivariate models.

These findings suggest that neuroticism, a personality trait associated with anxiety and worry, can be a significant predictor of TKI non-adherence in patients with CML. The study also underscores the importance of patient-reported quality of life in adherence behavior. Our findings raise the possibility of using personality assessments to tailor adherence support strategies in CML care. Specifically, patients exhibiting high neuroticism may benefit from interventions targeting emotional regulation and stress coping to improve adherence and, ultimately, clinical outcomes. Future studies in larger cohorts are warranted to validate these findings and to further explore how personality-driven, personalized medicine approaches may enhance long-term treatment success in CML.

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