Abstract: P1211

Title: DIAGNOSTIC AND PROGNOSTIC IMPACTS OF RHOA G17V MUTATION IN CELL-FREE DNA ASSESSED BY DROPLET DIGITAL POLYMERASE CHAIN REACTION IN PATIENTS WITH ANGIOIMMUNOBLASTIC T-CELL LYMPHOMA

Abstract Type: Poster Presentation

Topic: Aggressive Non-Hodgkin lymphoma - Clinical

Background:

Angioimmunoblastic T-cell lymphoma (AITL) is a subtype of peripheral T-cell lymphoma (PTCL) that originates from T follicular helper cells (TFH). RHOA G17V mutation could be detected in 50%-70% of cases of angioimmunoblastic T cell lymphoma (AITL). The diagnostic and prognostic impacts of RHOA G17V mutation in cell-free DNA in patients with AITL remain to be determined.

Aims:

This study aimed to diagnostic and prognostic impacts of RHOA G17V mutation in cell-free DNA (cfDNA) assessed by droplet digital polymerase chain reaction (ddPCR) in patients with AITL.

Methods:

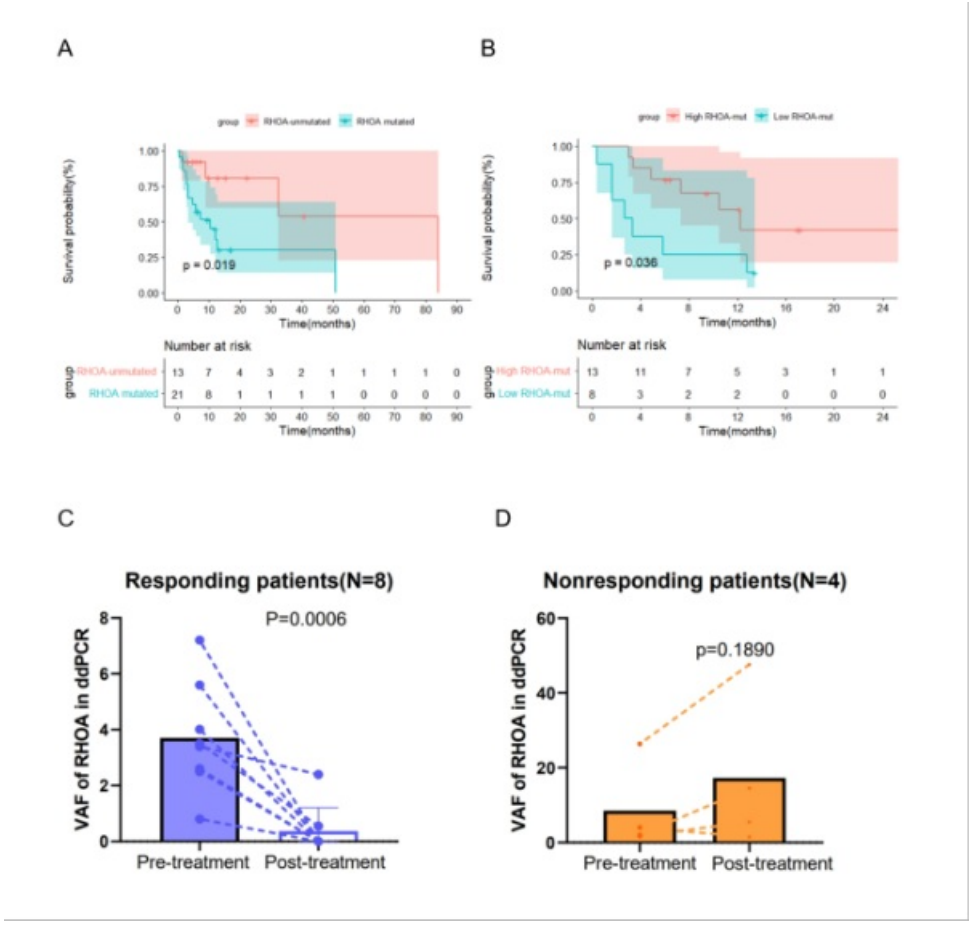
Plasma samples at diagnosis and during treatment were used to extract cfDNA. The status of RHOA G17V mutation was assessed by ddPCR.

Results:

Fifty patients, including 34 patients with AITL and 16 patients with peripheral T-cell lymphoma, not otherwise specified (PTCL-NOS), were included in this study. RHOA G17V mutation was detected in 61.7% (21/34) of patients with AITL but none of the patients with PTCL-NOS. The sensitivity and specificity of RHOA G17V mutation for diagnosing AITL were 61.8% and 100%, respectively. The presence of RHOA G17V mutations was associated with significantly decreased progression-free survival (PFS) (Median PFS: RHOA G17V mutated 10.5 months vs. RHOA G17V unmutated 84 months, p=0.019)(Figure A). Multivariate Cox analysis identified RHOA G17V mutation as an independent prognostic factor for predicting PFS in patients with AITL (hazards ratio [HR] 6.90, p=0.044). For RHOA G17V-mutated AITL patients, those who achieved complete response (CR) or partial response (PR) showed a significantly lower variant allele frequency (VAF) than those who had progressive disease (PD) or stable disease (SD) (mean VAF, CR/PR 3.69% vs PD/SD 14.85%, p = 0.0035). A higher VAF of RHOA G17V mutation was associated with significantly decreased PFS (Median PFS: VAF≥7.1% 3.02 months vs. VAF□7.1% 12.21 months, p=0.036) (Figure B). A longitudinal analysis of cfDNA was performed in 12 patients with RHOA G17V mutation. The VAFs of RHOA G17V mutation remarkably decreased after treatment in patients with achieved CR or PR, while the VAFs did not change significantly after treatment in patients who did not have a response(Figure C,D), suggesting dynamic monitoring of RHOA G17V mutation could be a supplementary method for evaluating responses in patients with RHOA G17V mutation.

Summary/Conclusion

RHOA G17V mutation status in cfDNA assessed by ddPCR was a robust diagnostic and prognostic marker for patients with AITL.



Keywords: Angioimmunoblastic T-cell lymphoma