A Multi-Institutional Prospective Cohort Study of Minimal Residual Disease in Peripheral T-cell Lymphoma: Impact of Autologous Stem Cell Transplant

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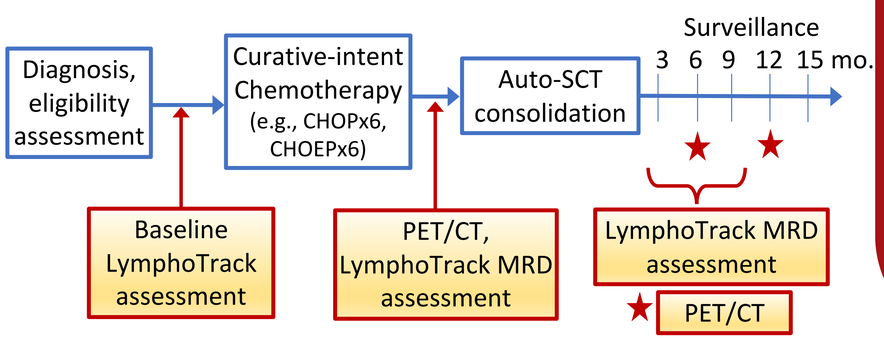
Background

- ~80% of patients with peripheral T-cell lymphomas (PTCL) respond to CHOP-based therapy, however 5-year survival remains 20-40%
- With high rates of relapse after complete response (CR), minimal residual disease (MRD) testing may have prognostic value
- Next generation sequencing (NGS) of the T-cell receptor (TCR) can detect a known TCR clonotype at 10^{-5}
- We previously reported that the measurement of peripheral blood TCR at end of treatment (EOT) was feasible in PTCL using NGS
  - Lack of radiographic CR correlated with detectable TCR in 9/11 patients
  - Detectable TCR also frequent in patients with CR by PET/CT (15/19 patients)
  - For EOT MRD evaluation, 80% (24/30) had detectable MRD by TCR

Methods

- This investigator-initiated, multi-institutional, prospective cohort study (NCT03297697) assessed MRD testing by TCR NGS in PTCL
- Here we report results for patients pre- and post-ASCT
- TCR clonality was considered positive via the LymphoTrack® TRG/TRB Assays – MiSeq® (Invivoscribe, San Diego, CA) when top % reads were ≥2.5% and ≥2x above background

Eligibility:
- Untreated peripheral T-cell lymphoma (PTCL)-NOS, angioimmunoblastic TCL (AITL), anaplastic large cell lymphoma (ALCL), PTCL with T-follicular helper (TFH) phenotype, monomorphic epitheliotropic intestinal TCL (MEITL)
- Pretreatment tumor sample available for TCR sequencing

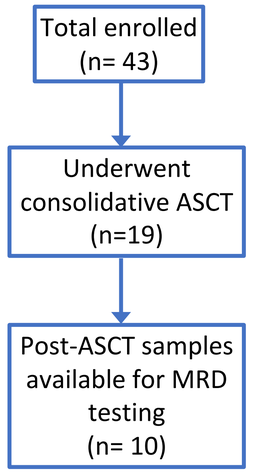


In this cohort of patients with PTCL receiving consolidative ASCT in CR1, all 4 patients with negative TCR MRD post-ASCT remain in remission at median follow up of 32.5 months post-ASCT.

The negative predictive value of TCR NGS MRD post-ASCT should be further evaluated.

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Results

- Median age at ASCT was 62 years (range: 38-77)
- At pre-ASCT evaluation, 7/10 patients had detectable TCR MRD (+) and 3/10 patients had TCR MRD below the level of detection (-/negative)
- Of the 3 MRD negative patients pre-ASCT, 2 had CR and 1 had PR by pre-ASCT PET/CT
- All 7 TCR MRD+ patients pre-ASCT were in CR by pre-ASCT PET/CT
- Of the 7 MRD+ patients pre-ASCT, 6 remained MRD+ and 1 became MRD negative post-ASCT
- **Of the 4 MRD negative patients post-ASCT, none have relapsed at 52, 31, 34, and 31 months post-ASCT**
- Of 7 MRD+ patients pre-ASCT, 3 have relapsed following ASCT (at 3, 9, and 29 months post-ASCT)

Pt #	Age	Diagnosis	Induction	Pre-ASCT MRD	Pre-ASCT PET/CT	Post-ASCT MRD	Relapse post-ASCT	Follow-up Post-ASCT (mo.)
1	52	ALK- ALCL	CHOEP	-	PR	-	No	52
2	39	AITL	BV+CHP	-	CR	-	No	31
3	69	PTCL NOS	BV+CHP	-	CR	-	No	34
4	71	AITL	Aza + CHOP	+	CR	-	No	31
5	68	AITL	CHOEP	+	CR	+	No	51
6	77	AITL	Aza + CHOP	+	CR	+	Yes (3 mo)	10 (died)
7	70	MEITL	CHOEP	+	CR	+	Yes (9 mo)	11 (died)
8	68	PTCL NOS	CHOP	+	CR	+	No	20
9	38	AITL	Aza + CHOP	+	CR	+	No	28
10	67	TFH PTCL	Aza + CHOP	+	CR	+	Yes (29 mo)	29