Cancer Associated Macrophage-Like cells (CAMLs) are a recently described circulating stromal cell common in the peripheral blood of cancer patients whose presence is prognostic for progressive disease. Further, it has been shown that changes in CAML size (i.e. enlargement to greater than 50µm) might be predictive for poorer progression free survival (PFS) in a number of thoracic cancers, including lung cancer. We prospectively enrolled 104 unselected non-small cell lung cancer (NSCLC) patients, with an initial training set review of 54 patients, to determine if change in CAML size after radiation therapy was predictive of PFS within 2 years.

**RESULTS**

- CAMLS were found in 95% of samples averaging 2.7 CAMLS/7.5mL sample at BL.
- At BL, patients with CAMLS ≥50 µm had reduced PFS (HR=2.4) (Figure 2).
- At T1, 18 patients had increased CAML size ≥50 µm with reduced PFS (HR=4.5) (Figure 2).
- 76% of patients with ≥50 µm CAMLs at BL progressed within 24 months.
- 83% of patients with ≥50 µm CAMLS at T1 progressed within 24 months.
- CAML size was the most significant indicator of PFS and OS, independent of all other clinical variables (Table 1).

**CONCLUSIONS**

- In unselectable NSCLC patients, enlarged CAMLS within 30 days of treatment induction is an indicator of poorer prognosis.
- We trialed and validated that a single ≥50 µm CAML, after completion of radiotherapy, is a significant independent indicator of poorer prognosis.
- Changes in CAML size during therapy may indicate the efficacy of therapy and could potentially help shape subsequent therapeutic decisions.
- Further prospective validation of giant CAMLS as a blood-based biomarker for risk stratification is ongoing through a R43/SBIR grant, results pending.

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**Funding Sources**

This work was supported by a grant R43CA206840 from the National Institutes of Health, and by W81XNF-14-C-0098 from the U.S. Army Research Office (ARO) and the Defense Advanced Research Projects Agency (DARPA). The content of the information does not necessarily reflect the position or the policy of the US Government.

**References**

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