Platelet-leukocyte aggregates (PLAs) are associated with increased thrombosis risk, but it remains unclear how formation of specific PLAs increases the risk of thrombosis. The influence of PLA formation is especially important for cancer patients, since thrombosis accounts for approximately 10% of cancer-associated deaths. Our objective was to characterize and quantify PLAs in whole blood samples from lung cancer patients and healthy volunteers to characterize PLA formation in cancer-associated thrombosis.

Consenting lung cancer patients and healthy volunteers were enrolled. Lung cancer patients had higher percentages of platelet-T cell aggregates (PTCAs) than healthy volunteers among both CD4+ lymphocytes (p ≤ 0.0001, sensitivity = 76.92%, specificity = 72.55%) and CD8+ T lymphocytes (p ≤ 0.0001, sensitivity = 75.00%, specificity = 73.08%).

Lung cancer patients with a history of an arterial thrombotic event (ATE) had increased numbers of platelets in CD8+ PTCAs than patients with no history of ATE (p ≤ 0.01, sensitivity = 63.04%, specificity = 64.44%). Lung cancer patients with a history of venous thromboembolism (VTE) had higher P-selectin expression within CD4+ PTCAs (p ≤ 0.01, sensitivity = 75%, specificity = 66.67%) and CD8+ PTCAs (p ≤ 0.001, sensitivity = 66.67%, specificity = 100%) than patients with no history of VTE.

Our findings demonstrate that characterization of PTCAs has clinical utility in differentiating lung cancer patients from healthy volunteers and stratifying lung cancer patients by history of thrombosis. PTCA formation may therefore be an important biomarker for lung cancer and cancer-associated thrombosis.
AWARDS

2019—Poster Presentation at Immunology 2019™ Meeting
2018—American Association of Immunologists Careers in Immunology Fellowship
2018—Oral Presentation at Midwest Platelet Conference
2018—The University of Toledo 3MT®, 1st place
2018—Council of Biomedical Graduate Students 2018 Graduate Research Forum, Finalist, Poster Presentation
2017—Council of Biomedical Graduate Students 2017 Graduate Research Forum, Finalist, Oral Presentation, 1st place
2014—University of Toledo College of Medicine MD/PhD Scholarship—Medical Degree
2014—University of Toledo College of Medicine MD/PhD Scholarship—Graduate Degree

PUBLICATIONS


FUTURE PLANS

Claire plans to complete medical school and apply to internal medicine residency programs. She intends to pursue a fellowship and conduct research in the specialty of infectious disease.

PRESENTED ABSTRACTS


