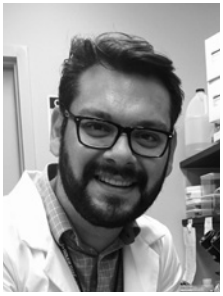
2017 RESEARCH AWARD UPDATE



Georgios Gemenetzis MD

Georgios Gemenetzis MD
Johns Hopkins University School of Medicine

Circulating Tumor Cells in Pancreatic Adenocarcinoma: Effect of Cancer-directed Therapy and Ex Vivo Modeling

Pancreatic ductal adenocarcinoma (PDAC) is characterized by unfavorable prognosis that is mainly associated with the advanced stage of disease at the time of diagnosis. The absence of biomarkers with high diagnostic sensitivity and specificity makes early identification and monitoring of disease progression challenging. Under the mentorship of Dr. Christopher L. Wolfgang, the AHPBA Research Grant has funded a prospective study on circulating tumor cells (CTCs) to assess their potential as a novel biomarker for treatment response and disease recurrence in PDAC.

In this prospective longitudinal study on PDAC CTCs dynamics, multiple peripheral blood samples were collected from 200 consecutively enrolled patients and CTCs were isolated and characterized by immunofluorescence. Patients who received neoadjuvant chemotherapy had significantly lower CTCs numbers compared with untreated patients eligible for upfront resection. Surgical resection of the primary tumor also resulted in significant reduction of CTCs. In multivariable logistic regression analysis, preoperative numbers of all CTCs subpopulations were the only predictors of early recurrence within 12 months from surgery in both chemo-naive and post-neoadjuvant patients. Alterations in CTCs were also observed longitudinally, before disease recurrence. A risk assessment score based on CTCs increase accurately identified disease recurrence within the next 2 months, with an accuracy of 75% and 84% for chemo-naive and post-neoadjuvant patients, respectively.

The financial support provided by the AHPBA Research Grant was an integral part of our research efforts. The results of this study allow us to further explore CTCs and gain a deeper insight on tumor biology in PDAC.