Peripheral blood leukocyte signatures as biomarkers in relapsed ovarian cancer patients receiving combined anti-CD73/anti-PD-L1 immunotherapy in Arm A of the NSGO-OV-UMB1/ENGOT-OV30 trial

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POSTER ABSTRACT: Immune checkpoint inhibitors have demonstrated limited efficacy in overcoming immunosuppression in patients with epithelial ovarian cancer (EOC). Although certain patients experience long-term treatment benefit, reliable biomarkers for responder pre-selection and the distinction of dominant immunosuppressive mechanisms have yet to be identified. Here, we used a 40-marker suspension mass cytometry panel to comprehensively phenotype peripheral blood leukocytes sampled over time from patients with relapsed EOC who underwent combination oleclumab (anti-CD73) and durvalumab (anti-PD-L1) immunotherapy in the NSGO-OV-UMB1/ENGOT-OV30 trial. We found survival duration was impacted by baseline abundances of total peripheral blood mononuclear cells. Longitudinal analyses revealed a significant increase in $CD14^{+}CD16^{-}$ myeloid cells during treatment, with significant expansion of monocytic myeloid-derived suppressor cells occurring in patients with shorter progression-free survival, who additionally showed a continuous decrease in central memory T-cell abundances. All patients demonstrated significant PD-L1 upregulation over time on most T-cell subsets. Higher CD73 and IDO1 expression on certain leukocytes at baseline significantly positively correlated with longer progression-free survival. Overall, our study proposes potential biomarkers for EOC immunotherapy personalization and response monitoring, however, further validation in larger studies is needed.