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Title: Examining Peripheral Immune Cell Phenotypes in NSCLC Patients Undergoing Chemoimmunotherapy

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Chemotherapy consists of cytotoxic drugs that attack cancerous and normal body cells. Immunotherapy consists of antibodies which allow the immune system to identify and target tumors. It is important to investigate the efficacy of immunotherapy after chemotherapy, considering the negative effects of chemotherapy on immune cells. Examining circulating immune cell phenotypes (specific immune cell subset counts) via flow cytometry and RNA sequencing can be a valuable method to detect whether a patient will respond to chemoimmunotherapy.

The goal of this research is to investigate the relationship between chemoimmunotherapy and immune cell phenotypes and determine whether early indicators of patient antitumor response can be identified.

The PubMed database was used to find published research that examined the relationship between peripheral immune cell phenotypes and patient antitumor response.

Responders to specific treatment regimens were found to exhibit a higher number of certain immune cell subsets, leading to a greater antitumor response. The peripheral blood mononuclear cells (PBMCs) of responders exhibited an initial dip following chemotherapy, but rebounded significantly after immunotherapy. The PBMCs of nonresponders did not exhibit this trend, suggesting that responders had an overall greater immune regulation of tumor growth than nonresponders.

Identification of differential responses in peripheral immune cell populations early in treatment has the potential to give early indications of overall response to specific treatment regimens, and can prove valuable in patient care.