IMMUNOTHERAPY

A "window" of opportunity for ovarian cancer immunotherapy

Patients with advanced ovarian cancer are known to have a 20–30% chance of survival, even when undergoing extensive chemotherapy. Xia Wu and co-workers now present evidence that the immune system of these patients is activated 12–14 days after chemotherapy and that this "window" period may reflect the optimal time for immunotherapeutic strategies to combat the tumor cells.

The investigators noted that OVCAR-3 cells (an ovarian cancer cell line) became apoptotic 24 h after exposure to paclitaxel and carboplatin and were capable of triggering dendritic cells to activate T cells. To examine the immunogenic kinetics of apoptotic ovarian cancer cells *in vivo*, the researchers sampled the blood of 13 women with advanced primary epithelial ovarian cancer before (S_0) and after (5–7 days [S_1], 12–14 days [S_2] and 25–28 days [S_3]) chemotherapy with paclitaxel and carboplatin. The investigators found that all patients had proportionally less effector T cells than healthy controls at S_0. However, they found a significant decrease in inhibitory T cells and a significant increase in various subsets of effector T cells at S_2. IFN-γ secretion from $CD8^+$ T cells was also significantly increased at S_2, indicating that the anti-tumor immune response peaked at 12–14 days after chemotherapy in these patients. "We suspect that if immunotherapy such as a vaccine is given at S_2, when the function of $CD8^+$ T cells is already partially restored, the effector $CD8^+$ T cells can eradicate residual cancer cells most effectively" concludes Wen Di, the study's lead investigator.

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Original article Wu, X. *et al.* The immunologic aspects in advanced ovarian cancer patients treated with paclitaxel and carboplatin chemotherapy. *Cancer Immunol. Immunother.* **59**, 279–291 (2010)