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Utilization of Serum Cytokine Change for Prediction of Chemotherapy Response in Advanced Pancreatic Cancer

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Background: Extensive infiltration of immune cells is observed in the stroma of pancreatic cancer tissue. These cells have antitumor, protumoral, or both effects. In this study, we examined the serial changes of serum type 1 T helper (Th1), type 2 T helper (Th2) cell, and inflammatory cytokines induced by chemotherapy in advanced pancreatic cancer patients.

Methods: We prospectively collected serum samples from patients with advanced or recurrent pancreatic adenocarcinoma before and four weeks after the initiation of first-line and second-line chemotherapy since 2014. We applied a multiplex cytokine beads array to analyze the serum for Th1, Th2, and inflammation-associated cytokines.

Results: We chose 4 advanced/recurrent patients with different responses to first-line and/or second-line chemotherapy for analysis. The dynamic change of Th1 response (IL-2, IL-12p40), Th2 response (IL-9, IL-13), and inflammatory cytokine (IL-1β) was associated with chemotherapy response.

Conclusion: The early changes of serum Th1, Th2, and inflammatory cytokines are associated with chemotherapy response. Further exploration of the dynamic change of the cytokine panel for early prediction of treatment response in advanced/recurrent pancreatic cancer is warranted.