

## **Study of Lymphocyte Subpopulations and Cytotoxic Activity in the Blood of Patients Undergoing Surgery for Pancreatic Cancer**

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**Context** The study of the immune responses to pancreatic cancer is an emerging field of clinical and laboratory research since accumulating evidence indicate that the lymphocyte count, the Th2 polarization, the profile of cytokines and chemokines produced by cancer and immune cells and the presence of CD8+ tumor-infiltrating lymphocytes (TILs) correlate with the tumor prognosis. **Objective** The purpose of our study is to analyze the lymphocyte population distribution and natural killer (NK) cell cytotoxic activity before and after curative pancreatic resection (radical exeresis of mesopancreas and extended lymphadenectomy). **Methods** We collected blood samples from 17 pancreatic cancer patients at three different time points, before surgery and 7 and 30 days after surgery, and we evaluated the peripheral blood lymphocyte profile by cytofluorimetric analysis and the NK cytotoxic activity by a <sup>51</sup>chromium release assay. Seventeen blood samples from healthy

subjects were used as control. **Results** The analysis of five lymphocyte subpopulations (T CD3+, T CD4+, T CD8+, NK CD56+, and B CD19+ cells) reveals a statistically significant increase (P=0.04) of NK CD56+ cells between the blood samples of patients, but not of controls, collected before and 30 days after surgery. Moreover, we observed a correlated modulation of NK cytotoxic activity. A more detailed classification of cancer pancreatic patients based on TNM and histological type revealed a further statistically significant modulation of T CD3+, T CD4+ and B CD19+ lymphocyte subpopulations and of NK cytotoxic activity. **Conclusions** Data show the importance of a radical pancreatic resection with complete mesopancreas removal and extended lymphadenectomy in the resumption of the NK cells and in the modulation of other lymphocyte subpopulations which may affect pancreatic cancer prognosis.