Two-step ovarian cancer immunotherapy made from patients' own tumor shows promise

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As many as three quarters of advanced ovarian cancer patients appeared to respond to a new two-step immunotherapy approach—including one patient who achieved complete remission—according research from the Perelman School of Medicine at the University of Pennsylvania that will be presented today in a press conference at the AACR Annual Meeting 2013.

The immunotherapy has two steps – a personalized dendritic cell vaccination and adoptive T-cell therapy. The team reports that in the study of 31 patients, vaccination therapy alone showed about a 61 percent clinical benefit, and the combination of both therapies showed about a 75 percent benefit.

The findings offer new hope for the large number of ovarian cancer patients who relapse following treatment. The first step of the immunotherapy approach is to preserve the patient's tumor cells alive, using sterile techniques at the time of surgery so they can be used to manufacture a personalized vaccine that teaches the patient's own immune system to attack the tumor. Then, the Penn Medicine team isolates immune cells called dendritic cells from patients' blood through a process called apheresis, which is similar to the process used for blood donation. Researchers then prepare each patient's personalized vaccine by exposing her dendritic cells to the tumor tissue that was collected during surgery.

Because ovarian cancer symptoms can be stealth and easily mistaken for other issues – constipation, weight gain, bloating, or more frequent urination – more than 60 percent of patients are diagnosed only after the disease has spread to their lymph nodes or other distant sites in the body, when treatment is much less likely to produce a cure compared to when the disease is detected early. As the fifth leading cause of cancer-related deaths among women in the United States, it takes the lives of more than 14,000 women each year.

"Given these grim outcomes, there is definitely a vast unmet need for the development of novel, alternate therapies," said lead author Lana Kandalaft, PharmD, PhD, MTR, a research assistant professor of Obstetrics and Gynecology and director of clinical development and operations in Penn Medicine's Ovarian Cancer Research Center. "This is the first time such a combination immunotherapy approach has been used for patients with ovarian cancer, and we believe the results are leading us toward a completely new way to treat this disease."

Both treatments are given in conjunction with bevacizumab, a drug that controls the blood vessel growth that feeds tumors. Combining bevacizumab with immunotherapy makes a powerful duo, Kandalaft says. The vaccine trial is still open to accrual to test new combinatorial strategies.

More information: Dr. Kandalaft will present the findings of the trial on Saturday, April 6, 2013 in the Late Breaking Clinical Trials press conference at 1:00 p.m. ET in room 153 of the Walter E. Washington Convention Center, 801 Mt Vernon Pl. NW, Washington, DC. She will also present during the Late-Breaking Research: Immunology poster session in Hall A-C (Poster Section 46) on Wednesday, April 10, from 8 a.m. to noon ET.