

## Intraperitoneal Chemotherapy for Ovarian Cancer

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Ovarian cancer remains an uncommon cancer compared to other female malignancies, such as breast, lung, and colon cancer. However, ovarian cancer is the leading cause of death among all gynecologic malignancies and the second most prevalent of the reproductive cancers (Siegel, Naishadham, & Jemal, 2012). According to the National Comprehensive Cancer Network ([NCCN], 2012b), the standard of care for advanced epithelial ovarian cancer (EOC) consists of an IV platinum and taxane-based chemotherapy for 6–8 cycles, or combination IV and intraperitoneal (IP) chemotherapy for patients with stage II or III cancer who have had optimally debulked (less than 1 cm residual) surgery (see Figure 1).

The Gynecologic Oncology Group (GOG) conducted a randomized, phase III trial, GOG 172 (Armstrong et al., 2006), that compared IP chemotherapy to IV chemotherapy and reported a median overall survival of 65.6 months in the IP group compared to 49.7 months for women receiving IV chemotherapy. As a result, the National Cancer Institute ([NCI], 2006) issued a clinical bulletin suggesting that all women with stage III EOC who have undergone optimal cytoreductive surgery should be considered for IP chemotherapy because of statistically significant improvement in overall survival.

### Case Study

L.T., a 50-year-old, single, nulligravida, Caucasian woman, was diagnosed with stage IIIC, grade 3, papillary serous adenocarcinoma of the ovary. She underwent optimal cytoreductive surgery and presented for a second opinion six weeks after surgery for continuation of care. After review of pathology and medical records, it was recommended that L.T. immediately begin adjuvant chemotherapy with two cycles of IV carboplatin and

paclitaxel every three weeks followed by IP port placement and completion of chemotherapy with an additional four cycles of combination IV and IP chemotherapy. The placement of the IP port would be performed as a laparoscopic outpatient procedure three weeks after completing L.T.'s second chemotherapy cycle. That surgery would also allow her gynecologic oncologic surgeon, who did not perform her original surgery, to assess for any residual disease.

The rationale for the IP chemotherapy for L.T. is based on research showing improved survival outcomes and her young age, excellent performance status, and previous optimal cytoreductive surgery. Three phase III trials have produced results that support using IP therapy in this patient population (Alberts et al., 1996; Armstrong et al., 2006; Markman et al., 2001). Alberts et al. (1996) and Markham et al. (2001) reported an eight- and nine-month overall survival, respectively, in the IP group compared to the IV group. Armstrong et al. (2006) showed a progression-free survival of 18.3 months in the IV arm and 23.8 months in the IP arm. The results were impressive because only 42% of patients in the IP arm completed all six cycles of planned treatment (Armstrong et al., 2006). Because L.T. did not have an IP port placed at the time of her surgery, she was started with traditional IV chemotherapy to prevent additional treatment delay. L.T. was counseled that she would potentially benefit from four cycles of IP therapy. The study by Armstrong et al. (2006) reported the average number of IP cycles was three, and those patients also demonstrated improved overall survival.

### Intraperitoneal Therapy

Not all patients are candidates for IP therapy. Excluded are patients with bulky or residual disease greater than 1

cm. In addition, several conditions may prevent continuation of IP chemotherapy, such as catheter complications (e.g., improper placement, leakage, inability to infuse), comorbid diseases, and intolerable side effects including severe nausea, vomiting, electrolyte imbalance, or persistent abdominal pain (Markman & Walker, 2006). Patients receiving IP therapy require more frequent nursing assessment because of the potential for these challenging side effects (Potter & Held-Warmkessel, 2008). In addition, physician offices and infusion centers inexperienced with IP administration may shy away from recommending this route of therapy.

In the GOG 172 protocol, the IP regimen demonstrated a distinctly different side effect profile from IV chemotherapy. More grade 3 and 4 events took place in the IP regimen, specifically leukopenia (76% versus 64%), gastrointestinal (46% versus 24%), metabolic (27% versus 7%), neuropathy (19% versus 9%), and fatigue (18% versus 4%) (Armstrong et al., 2006). In addition, quality of life was evaluated using the Functional Assessment of Cancer–Ovarian questionnaire; those who received the IP regimen reported a worse quality of life. However, at one-year follow-up, the quality-of-life results for both groups remained similar (Armstrong et al., 2006; Wenzel, Huang, Armstrong, Walker, & Cella, 2007).

### Nursing Management of Intraperitoneal Chemotherapy

Paclitaxel is administered before cisplatin because of a potential allergic reaction from paclitaxel and a potential decreased renal clearance from platinum-based therapy (Almadrones, 2007; Eisenhauer et al., 1994). In the author's practice, paclitaxel may be infused over the course of three hours instead of 24 hours as described in the published protocol. Otherwise, the patient would