



## Completion of intraperitoneal chemotherapy in advanced ovarian cancer and catheter-related complications

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### ABSTRACT

**Objective.** Combination intravenous/intraperitoneal (IV/IP) chemotherapy has been shown in three randomized trials to be superior to IV therapy alone in the treatment of advanced ovarian cancer with respect to overall survival (OS). We sought to evaluate the effect of dose modification of IP therapy on completion rates.

**Methods.** From November 1999 until August 2008, all optimally debulked, advanced stage ovarian cancer patients who received adjuvant IP chemotherapy at a single institution were reviewed. The primary endpoint was completion of 6 cycles of IP chemotherapy. This rate was compared to published results from GOG 172. A secondary analysis evaluated completion of chemotherapy based on IP catheter type. Statistical analysis was performed with a chi square test with a significance level of  $p < 0.05$ .

**Results.** One hundred and three patients received IP chemotherapy during this period. Seventy-five patients received the modified IV/IP chemotherapy regimen. Sixty-two patients (83%) completed all 6 cycles in our cohort compared to 119 patients (42%) reported in GOG 172 ( $p = 0.0001$ ). Fifty-five patients had a fenestrated catheter (F) and 48 had a non-fenestrated (NF) catheter. Eight patients in each cohort discontinued treatment, for a completion rate of 85.5% in NF and 82.3% in F ( $p = 0.79$ ).

**Conclusions.** The dose modifications utilized in this study allowed for completion of 6 cycles of adjuvant IP chemotherapy in 83% of patients. Choice of catheter type did not affect completion rates. Continued monitoring of outcomes is planned to compare PFS and OS. The high completion rate may increase acceptance of IP chemotherapy in the community setting.

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### Introduction

Ovarian cancer is the most common cause of death among women who develop gynecologic malignancies. It is estimated that over 21,550 women will be diagnosed with ovarian cancer and over 14,600 will die from ovarian cancer in 2009 [1,2]. This high mortality rate can be partially attributed to the fact that >75% of patients are diagnosed at an advanced stage of disease, Stage III or IV. Furthermore, despite a >80% remission rate with the recommended therapeutic approach, recurrence rates are high. Standard therapeutic approach to ovarian cancer patients is maximal surgical cytoreduction followed by systemic intravenous (IV) chemotherapy with a platinum agent and paclitaxel.

Level I evidence and an NCI consensus statement support the use of intraperitoneal (IP) chemotherapy to improve survival in patients

with optimally resected epithelial ovarian cancer. Three randomized phase III trials performed by the Gynecologic Oncology Group (GOG) have demonstrated the superiority of combination IV/IP therapy compared to IV chemotherapy alone [3–5]. The first study, GOG 104, was perhaps the purest randomization of patients to IV versus IP therapy. Patients received IV cisplatin in addition to IV cyclophosphamide as the standard arm compared to IP cisplatin at an equivalent dose in the experimental arm. Thus, it is the only trial for which conclusions can be drawn about the relative toxicity of IV versus IP administration of the same drug at the same dose. Myelosuppression, neuropathy, and ototoxicity were reduced with IP treatment as compared to IV, and the only toxicity that was increased with IP therapy was abdominal pain. Overall risk of mortality was reduced by 24% with IP versus IV therapy, and there was an overall survival benefit of 8 months for the IV/IP arm [3].

The two subsequent trials incorporated IV paclitaxel with IP cisplatin in the IP approach, but compared other factors such as dose density and schedule, which made interpretation of the results and toxicities difficult. In the second randomized trial, GOG 114, patients were randomized to either the standard arm, which included IV taxol and IV cisplatin versus the experimental arm in which patients

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