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**Hypoxic Isolated Abdominal Perfusion Breaks through Chemoresistance in Recurrent FIGO Stage IIIC and IV Ovarian Cancer: Experience in 143 Patients with Platinum-Refractory and 25 Patients with Chemo-naive Ovarian Cancers**

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**Abstract**

**Background:** Increased drug exposure for recurrent platinum-refractory ovarian cancers is limited because of enhanced systemic toxicity. In order to avoid major systemic drug exposure, chemotherapy was administered selectively to the abdomen by means of an isolated perfusion circuit. Systemic drug exposure in addition was lowered by sequential chemofiltration.

**Material and methods:** A median of four cycles of isolated hypoxic abdominal perfusion with cisplatin, adriamycin and mitomycin were conducted in four weeks intervals. Drugs were injected into the isolated perfusion circuit under high oxygenation, followed by a 15 minutes local exposure time in the isolated perfusion circuit under hypoxic conditions. Mitomycin and adriamycin were chosen because of their increased cytotoxicity under hypoxia. The study included 168 patients out of which 143 patients with recurrent disease had prior platinum-containing therapies (86 stage FIGO IIIC and 57 stage FIGO IV) and 25 patients were chemo-naive (20 stage FIGO III, 5 stage FIGO IV). 56 patients had G3 tumors.

**Results:** For systemically pretreated patients, the median survival rate in stage FIGO IIIC was 13 months and in stage IV 11 months. FIGO IIIC patients without prior therapy had a median survival of 16 months. A subgroup of 79 patients who had undergone second-look laparotomy revealed completed clinical and histological remission in 25 % and 13 % of cases, respectively, and partial remissions in 39 % and 35 %, respectively. The overall clinical response rate was 64 % and histological response rate was 48 %. Complete resolution of ascites was noted in 43 % of cases within two isolated perfusions. A substantial reduction of ascites was noted in 19 %. Toxicity and side-effects were generally low because of the isolated perfusion combined with chemofiltration. Bone marrow suppression ranged between WHO grade 1 and 2, in patients with previous third- and fourth-line chemotherapy it was WHO grade 3. The predominant clinical symptom in patients with posttherapeutic tumor necrosis, which occurs in 15 - 20 % of all cases, was fever and fatigue.

**Conclusions:** Isolated hypoxic abdominal perfusion with chemofiltration for patients with progressive and platinum-refractory stage FIGO IIIC and IV ovarian cancer is an effective therapy because of a homogenous drug distribution in recurrent tumor volumes, offering comparably long survival and good quality of life.