

62%/87% ( $P = 0.008$ ), respectively. Pelvic nodal recurrence was observed in 4 patients. One patient developed isolated pelvic node recurrence while the other 3 had concurrent recurrences at other sites, including 1 with a cervical tumor and 2 with cervical tumors and distant metastases. Nodal recurrence rates by the largest diameter were 1/64 for node-negative patients, 1/15 for nodes 10–14 mm, 0/13 for nodes 15–29 mm, and 2/7 for nodes  $\geq 30$  mm.

**Conclusion:** Pelvic nodal metastases less than 30 mm were well controlled by CCRT without surgical resection using RT dose delivered. Thus, surgical debulking may be omitted for patients with enlarged pelvic nodes measuring less than 30 mm.

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POSTER

**Prospective study on helical Tomotherapy as a new technique for whole abdominal irradiation in patients with advanced ovarian cancer**

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**Background:** The prognosis for patients with advanced epithelial ovarian cancer remains poor despite aggressive surgical resection and platinum-based chemotherapy. Despite whole abdominal irradiation's (WAI) clinically proven efficacy, the use of radiotherapy in ovarian cancer has profoundly decreased mainly due to high toxicity. The purpose of this prospective study was to evaluate feasibility and toxicity of WAI applied by tomotherapy as a new method of image-guided IMRT.

**Materials and Methods:** Four patients who met our inclusion criteria (radically operated ovarian cancer FIGO stage III, R1 or R2  $< 1$  cm and adjuvant platinum-based chemotherapy) were treated with WAI applied by tomotherapy to a total dose of 30 Gy in 1.5 Gy fractions as additional therapy. Organs at risk (OARs) were bone marrow, kidneys, liver, spinal cord, thoracic and lumbosacral vertebral bodies and pelvic bones. The planning target volume (PTV) included the entire peritoneal cavity. PTV was adapted according to breathing motion as detected in a 4D-respiratory-triggered computed tomography. Inverse treatment planning was done with the Hi-ART tomotherapy planning station. Daily control of positioning accuracy was performed with megavoltage computed tomography (MV-CT). Two patients are currently under therapy and more are about to be included in our study.

**Results:** Helical tomotherapy enabled a very homogeneous dose distribution with excellent sparing of OARs. A very satisfying target coverage was achieved, with a mean V90 of 94.0%, a mean V95 of 82.6%, a mean V105 of 6.5% and a mean V110 of 0.58%. Mean liver dose was 22.22 Gy and mean kidney doses were 8.62 Gy and 8.26 Gy respectively. Treatment could be performed in a mean time span of 21.3 minutes. No grade III/IV acute and late toxicity occurred. Until to date we did not encounter any relapse.

**Conclusions:** Helical tomotherapy is feasible and fast for WAI. It enabled excellent coverage of the PTV and effective sparing of liver, kidneys and bone marrow. No severe side effects occurred. Our technique provides a new promising alternative for intensity modulated WAI. Therefore we initiated a phase I/II study to evaluate the role of tomotherapy WAI in the treatment of advanced ovarian cancer.

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POSTER

**Prognostic impact of pMI (mitotic index of proliferating cell population) in cervical cancer patients treated with carbon-ion beam**

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**Background:** We previously reported that the pMI (Mitotic Index [MI] of Proliferating Cell Population) was a strong prognostic factor in cervical cancer patients treated with photon beam (Nakano and Oka. Cancer 1993). In this study, we investigated whether pMI predicted prognosis in cervical cancer patients treated with carbon ion beam, or not.

**Materials and Methods:** Tissue sections were obtained from all of 27 patients with stage IIB bulky (19 patients) and IVA (8 patients) squamous cell carcinomas of the cervix treated with carbon ion beam at National Institute of Radiological Sciences between 1995 and 1997 as a phase I&II study with dose escalation fashion (protocol: 9403). The treatment was started with an initial dose of 52.8 GyE/24 fraction, and was increased by 4.8 GyE per step to total 72.0 GyE/24 fraction. Their ages

ranged from 36 to 72 years old (mean and median: 56 and 54 years old). All patients were followed for a minimum of 5 years or until death. The MI and Ki-67 labeling index (Ki-67-LI) were determined by H&E and immunohistochemical staining, respectively. More than 1000 tumor cells were evaluated in each specimen. The pMI was calculated as following formula;  $pMI = (MI)/(Ki-67-LI)$ . Cut-off value of the pMI was defined as 3.5, according to the result of our previous report. The Fisher's exact probability test were used for the statistical analysis of differences. The data of the multivariate analysis for local control and survival were assessed with the Cox proportional multivariate analysis.

**Results:** The pMI ranged from 0.6 to 8.9 (mean and median: 3.9 and 3.2). A total of 44% (12/27) of tissue specimens had greater than 3.5 of the pMI. Nine of 12 patients with greater than 3.5 of the pMI had local recurrence, while only 4 of 15 patients with less than 3.5 of the pMI had local recurrence ( $p = 0.02$ ). Ten of 12 patients with greater than 3.5 of the pMI were died of the disease within five years, while 6 of 15 patients with less than 3.5 of the pMI were died within five years ( $p = 0.047$ ). The multivariate analysis indicated that the pMI had the strongest impact on both local control (standard regression coefficient = 0.48 and  $p = 0.019$ ) and survival (standard regression coefficient = 0.48 and  $p = 0.017$ ) among the variables, including clinical stage and irradiated dose.

**Conclusions:** These results suggest that high pMI predict a poor prognosis in patients with squamous cell carcinomas of the cervix treated with carbon ion beam.

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POSTER

**Recurrent or metastatic endometrial cancer: Prognostic factors after taxane-based systemic chemotherapy**

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**Background:** Taxane-based chemotherapy has been recently introduced as an effective therapeutic option in recurrent or metastatic endometrial carcinoma (RMEC), exhibiting considerable efficacy even in the more aggressive types of uterine papillary-serous carcinoma (UPCC) and clear-cell carcinoma (UCCC). The aim of the current study was to determine the potential prognostic factors in RMEC after taxane-based chemotherapy.

**Patients and Methods:** 110 eligible patients who received paclitaxel-containing regimen for RMEC were retrospectively evaluated and follow-up data were recorded. Potential prognostic factors for overall survival (OS) were identified with the Kaplan-Meier method in univariate analysis and the Cox regression model in multivariate analysis.

**Results:** Although non-endometrioid (UPSC and UCCC) histology is associated with a worse prognosis compared to endometrioid adenocarcinoma (14.46 months, 95% CI: 8.66–20.26 months vs 17.57 months, 95% CI: 11.91–23.24,  $p = 0.093$ ), histology does not constitute an independent prognostic factor for OS in multivariate analysis (HR = 1.43, 95% CI: 0.82–2.48,  $p = 0.21$ ). Performance status (PS) at diagnosis and histological grade are independent prognostic factors for overall survival ( $p = 0.007$  and 0.045 respectively). Patients who do not relapse within the field of previous external radiation have a 45% reduction in the risk of cancer-associated death compared to patients who do so (HR = 0.55, 95% CI 0.32–0.93,  $p = 0.026$ ).

**Conclusion:** Despite the documented efficacy of paclitaxel-containing regimens against UPSC and UCCC, patients bearing such tumours continue to be associated with a worse prognosis compared to those with endometrioid tumours, albeit not significantly. PS at diagnosis, histological grade of the tumour and relapse within the field of previous external radiotherapy constitute a valid prognostic model in the RMEC setting after taxane-based chemotherapy.

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POSTER

**Non-dysgerminomas of the ovary: a retrospective analysis at N.N. Blokhin Russian Cancer Research Center**

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**Purpose:** This is a retrospective review of treatment results of patients with malignant ovarian germ cell tumors (MOGCT) except dysgerminomas in Clinical Pharmacology and Gynecology Departments, N.N. Blokhin Russian Cancer Research Center (NNBRCRC) between 1990 and 2006.

**Methods:** A total of 56 patients with nondysgerminomas were retrospectively reviewed. The histologic subtypes included endodermal sinus tumors ( $n = 13$ ), immature teratomas ( $n = 13$ ), embryonal carcinoma ( $n = 1$ ),