vestigated the addition of CAP to GEM in patients with advanced pancreatic cancer.

Methods: Patients (pts) with histologically or cytologically confirmed, inoperable or metastatic pancreatic cancer were included in this open multicenter study. GEM was given at a fixed dose of 1 g/m^2 on days 1 + 8. CAP was given q12hrs for 14 days. The regimen was repeated every 3 weeks. Starting dose for CAP was 1 g/m^2/d (level 1), escalating to 1.3 g/m^2/d and 1.6 g/m^2/d (level 2 and 3 resp.). Maximum tolerated dose (MTD) was defined as the dose causing dose limiting toxicity (DLT) in ≥1/3 of a cohort of 6 pts. DLT was defined as neutro- or thrombocytopenia grade 4, mucositis ≥ grade 3, hand-foot-syndrome grade 3, all according to NCIC CTC. At the recommended dose level (one level below MTD) an additional 10 pts. were included.

Results: 35 pts were included. DLT occurred in 2/6 pts at level 3 consisting of myelotoxicity and stomatitis. Hand-foot-syndrome and alopecia were not observed and other toxicities were mild. Thus, in this regimen the recommended dose of CAP is 1.3 g/m^2/d.

Of 24 pts: with measurable disease, so far 1 complete and 6 partial remissions (RR 29%) and several highly significant drops in CA 19-9 have been observed.

Conclusions: GEM and CAP is a highly active and well tolerated drug combination in advanced panoreatic cancer. It is presently compared to GEM-monotherapy in a phase III trial.

Gynaecological cancer

1169 POSTER

Factors determining acute normal tissue reactions of postoperative radiotherapy in endometrial cancer

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Purpose Our aim was to evaluate the influence of patient- and treatment-related factors on the risk of acute reactions during postoperative radiotherapy (RT) in endometrial cancer (EC) patients (pts).

Methods This series included 247 EC pts treated between 1974 and 1991 with surgery followed by RT consisting of Cs or Ra brachytherapy (BRT) and external beam RT (XRT). Mean BRT dose rate at 0.5 cm was 0.75±0.49 Gy/h and mean BRT dose was 50.1±11.7 Gy at 0.5 cm. Mean XRT dose within the target volume was 44.5±3.4 Gy given with a mean daily fraction of mean 1.82±0.15 Gy. Normalised Total Doses (NTD including XRT and BRT doses, were calculated based on linear-quadratic equation. EORTC/RTOG scale was used to score acute reactions.

Results Acute rectal reactions (of any grade) occurred in 188 pts (76%) and acute urinary bladder reactions - in 101 pts (41%). Severe (grade 3 and 4) acute rectal and bladder reactions were observed in 14 pts and 1 pt (5%), respectively. In univariate analysis, XRT dose (p=0.018) and total NTD in the prescription point (p=0.047) and in the rectum (p=0.037) were significantly correlated with the risk of acute rectal reactions, whereas age was of borderline significance (p=0.07). Multivariate analysis showed that NTD (p=0.007) and XRT dose (p=0.003) were independent risk factors for acute rectal injury. BRT dose (p=0.049), BRT dose rate (p=0.002), XRT fraction dose (p<0.001) and use of Cs (p<0.001) were in univariate analysis correlated with the risk of acute bladder injury, whereas parity (p=0.074) and NTD (p=0.063) were of borderline significance. In multivariate analysis none of these factors was significantly correlated with the risk of acute bladder injury. Interestingly, no clinical factor (age, parity, FIGO stage, diabetes, hypertension), neither RT time and surgery-RT interval was independently associated with acute rectal and/or bladder injury.

Conclusions The risk of acute normal tissue reactions depends mainly on treatment-related factors (NTD, XRT dose), whereas the impact of patient-related variables is negligible. Precise treatment prescription, planning and verification are of paramount importance.

1170 POSTER

Adequacy of small pelvic irradiation instead of whole pelvic irradiation for a subgroup of lymph-node negative patients In postoperative radiotherapy for cervical carcinoma

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Purpose: In postoperative radiotherapy (postop RT) for cervical carcinoma, a whole pelvic irradiation (WP) which includes pericervical regions and the lymphatic system up to common iliac lymph node (LN) regions has been used irrespective of nodal status. We clinically verified logical adequacy of using a small pelvic irradiation (SP) for LN negative patients; SP includes pericervical regions only and in consequence covers external and internal iliac LN regions. Methods: 85 patients with stage I or II cervical squamous cell carcinoma treated by postop RT between 1990 and 1998 were eligible. The patients had any of risk factors of deep stromal invasion, lymph-vascular infiltration, close surgical margin, and LN metastasis. RT doses ranged from 48.0 to 54.0 Gy, with or without another boost doses. WP was used for a group of 42 LN positive patients and SP for another group of 43 LN negative patients. Survival rate (SR), disease free rate (DFR), and pelvic disease free rate (PFR) were calculated by the Kaplan- Meier method to make a comparison between two groups. Results: 4 patients showed recurrence and 3 died of disease in SP group, whereas 15 showed recurrence and 12 died of disease in WP group; 3 and 4 showed pelvic recurrence in respective groups. SR and DFR were significantly higher for SP group than for WP group: 2-year SR being 93% vs 83% (p=0.0124) and 2-year DFR being 91% vs 69% (p=0.0029), respectively. In contrast, PFR did not differ between SP group and WP group: 2-year PFR being 93% vs 88% (p=0.2532), respectively. Conclusion: Use of SP is sufficient for LN negative patients in whom pericervical regions are the main sites of recurrence.

1171 POSTER

Does palliative chemotherapy provide a palliative effect in cervical carcinoma? A review of the literature

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Purpose: To review whether palliative chemotherapy has an evidence-based palliative effect (on pain, discharge, bleeding, fatigue etc), besides the limited effect on survival.

Method: 69 palliative chemotherapy studies were identified in Medline during 1987-2000. Data on type of treatment, response rate, response duration, side-effects, and effect on symptoms and quality of life were registered.

Results: Response rates were often in the range of 10-40%, with a short duration. Only in 12/69 studies there were any approach to evaluate a possible palliative effect on pain, subjective improvement of other cancer related symptoms (bleeding, discharge, oedema, breathlessness etc.) or improvement of performance status using a defined instrument. The scarce data indicate that palliative chemotherapy might have a good effect on symptoms, but the strict evidence-base is poor.

Discussion: Pain, discharge, haemorrhage, fatigue and dyspnoea are frequent problems in recurrent cervical cancer. Convincing data show that objective tumour response and duration of response is limited. Still, patients might benefit from palliative chemotherapy as regards improvements in symptom control and quality of life. Studies that are designed to evaluate such true palliative effects are needed.

1172 POSTER

Therapeutic outcome in the radiotherapy of relapses of cervical carcinoma

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Objective: The purpose of this study was to evaluate the efficacy of radiotherapy in patients with relapses of cervical carcinoma.

Methods: A retrospective analysis was undertaken of 27 consecutive patients who underwent radiation therapy for relapses of cervical carcinoma between 1989 and 1999. The median follow up was 14 months (1-61). 17 patients had inoperable tumors or macroscopic residual tumor following surgery of the recurrence. 4 patients had a microscopically incomplete surgery, 6 patients had a complete tumor resection. Radiation

therapy techniques and doses changed over time and according to the individual situation. External beam radiotherapy or combined radiotherapy was delivered to a total dose of 50-65 Gy.

Results: Survival rates were as follows: 5-year actuarial survival rate was 25%, relapse-free survival 24%, local control 45%. According to the margins of surgery the 5-year survival rate was 60% in case of surgery without residual tumor and 25% in case of microscopic tumor. No patient was alive after 40 month in case of inoperability or surgery with macroscopic residual tumor. No statistically significant difference in the survival rates was seen between the different groups.

Conclusion: The treatment of relapses of cervical carcinoma with radiotherapy is an effective, potentially curative treatment. The probability to cure the patients is higher in case of complete surgery without residual tumor. Probably higher doses for macroscopic tumor are needed.

1173 POSTER

Results of definitive radiation therapy in adenosquamous cell carcinoma of the uterine cervix

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Purpose: To define the clinical features and pattern of failure and to evaluate the results of radiation treatment in of adenosquamous cell carcinoma of the uterine cervix.

Methods and Materials: From Jun. 1981 to Dec. 1997, 43 patients with adenosquamous cell carcinoma of the uterine cervix were retrospectively analyzed external radiation treatment and HDR-ICR from Yonsei cancer center and Wonju cristian hospital. The median age was 51. Stage distribution according to FIGO were stage 1b in 10, 2a in 5, 2b in 18, 3b in 9, 4a in 1. Median follow-up period was 41 months.

Results: Overall survival rate and disease free survival rate were 57.2% and 60.2%. Complete response rate was 86.0%. Locoregional failure was observed in seven patients.

Conclusion: Major pattern of failure was locoregional failure. Adenosquamous cell carcinoma was not more aggressive than other pathologic types.

1174 POSTER

Prognostic factors in patients with cervical cancer treated with surgery and adjuvant radiotherapy first results after chemoradiation in high-risk-cases

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Purpose: Radical hysterectomy is an effective therapy in the treatment of stage IB and IIB cervical cancer. The presence of lymph node metastasis is associated with increased pelvic recurrence. New studies indicate that adding chemotherapy to radiation improves overall survival for women with cervical cancer.

Methods: We have retrospectively evaluated the treatment results and prognostic factors in patients with stage IB/IIB cervical cancers treated with radical hysterectomy and lymphadenectomy followed by adjuvant radiotherapy. From 1981 through 1993, a total number of 289 patients with stage IB (N=175) or IIB (N = 116) cervical cancers received adjuvant radiotherapy in our department. All patients were treated with High-voltage-irradiation, daily dose of 1.8 -2 Gy up to total dose of 50 Gy, parametrial boost in selected cases up to 54 Gy.

Results: The overall 5-year-survival was 70%. 5-year-survival according to stage was 75% for IB and 58% for stage IIB. The most important single prognostic factor was lymph node involvement with a 5-year-survival of 75% for pN0 and 52% for pN+. The prognosis decreased with increasing number of involved lymph nodes (5-year survival 58% for 1-2 involved nodes versus 20% for 3 and more positive nodes). Grading was of marginal prognostic significance. Histology (adenocarcinoma versus squamous cell cancer) was not significant.

In a Cox regression model including stage, grading, histology and lymph node status, the only significant factor was lymph node involvement. Since 1996, patients with risk factor (pN+ or histological lymphangiosis and G3) are routinely treated with postoperative radiotherapy combined with simultaneous cisplatin/5-FU chemotherapy (20mg Cisplatin/m2 and 600mg 5FU/m2, day 1-5 and day 29-33). The follow-up in this group (N =32) is limited but the 3-year-survival of 84% compares favorably to the historical results with radiotherapy alone.

Conclusions: In high-risk-cases of surgical treated cervical cancers seem to benefit from the concomitant radiochemotherapy with cisplatin/5-FU as compared to radiotherapy alone.

1175 POSTER

Radiochemotherapy in advanced cervical cancer - toxicity and efficacy

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Purpose: The efficacy and toxicity of radiochemotherapy with cisplatin in patients with cervical cancer stage IIB-IVA was evaluated.

Methods: From December 2000 to April 2001 43 patients with cervical cancer were treated with simultaneous radiochemotherapy with cisplatin. The mean age was 53 years (range 31 to 70). The pathology of the biopsy sections performed initially was squamosus cell carcinoma in 41 cases and 2 were undifferentiated carcinoma. A CT-based 3D-treatment planing was preferred in all cases. Every patient was treated with a four-field-box-technique with individual blocks to a total dose of 50Gy and with LDR brachytherapy at the total dose of 40-60Gy to point A in 2 fractions. Cisplatin 40mg/m2 was administered intravenously at 7 days interval from the first day of radiation for a maximum six cycles. The assessment was performed at the end of treatment with clinical examination, US and SCC serum level.

Results: At the end of the treatment the overall clinical response rate of was 86% (70% with a complete response and 16% with partial response). No major hematology and digestive tixicites were noticed during radiochemotherapy except mild neutropenia (grade 1-30%, grade 2-16%, grade 3-14%), anemia (grade 1-30%, grade 2-16%) and mild diarrhoea (grade 1-20%).

Conclusion: The results of this study suggest that the radiochemotherapy should be accepted as a safe and effective treatment of advanced cervical cancer.

1176 POSTER

An audit of transfusion practice during radiotherapy for cervix cancer at the Sydney cancer centre

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Introduction: Anaemia during Radiotherapy (RT) for cervix acncer is associated with poorer local control and survival based on retrospective studies. It has been suggested that the haemoglobin (HB) levels be maintained at least 120g/L during RT as the positive effect on treatment outcomes was observed up to this level. This audit was pedrformed to determine the frequency of full blood count (FBC), the Hb levels and the threshold for transfusion during RT.

Methods: During 1999, 26 patients with cervix cancer received pelvic RT (13 concurrent chemoRT, 2 definitive RT, 5 postoperative RT, 6 palliative RT). The medical records of these patients were reviewed and the Hb levels during RT, frquency of FBC and the transfusion threshold were analysed.

Results: The median age was 56 (range 29-86). The median Hb at time of diagnosis was 126 g/L (range 65-156 g/L). FBC was not performed during RT in 4 patients (2postoperative, 2palliative). For those who had FBC during RT, the median number of FBC was 5 (range 1-10). Patients in the chemotherapy group had significantly more FBC during RT (5 vs 1.5, $p<0.005$). Six patients received one blood transfusion during RT (all in the chemoRT group) and the median Hb prior to transfusion was 99.5 g/L. The median Hb during RT was 115.7 g/L (119.2 g/L for the non-transfused patients and 106.9 g/L for transfused patients). The median Hb during RT were similar in the chemoRT and RT alone groups(113.6 g/L and 113.9 g/L). Overall the Hb levels were maintained >100g/L in 17 patients and >120 g/L in 9 patientsduring RT.

Conclusions: In routine practice, the threshold for blood transfusion was <100g/L and the Hb levels were maintained close to 120 g/L with transfusion. This audit provides data for the design of any future trial aiming to examine the effect of Hb levels during RT on treatment outcomes. A randomized trial designed to compare this practice with other methods of maintaining Hb >120 g/L may have difficulty demonstrating a significant effect.