proton radiation for these patients was 76.0 Gy (range, 69.1-87.4 Gy). The remaining 6 patients received proton radiation therapy alone (75-89.5 Gy, median 82 Gy) over 33 - 72 days (median 55 days). The median follow-up period was 35 months (range, 4–138 months). We analyzed the tumor response, the survival rates, patterns of failure and morbidity.

Results: Thirty-nine (85%) patients showed a complete response within 4 months after completion of treatment. Five-year actuarial survival for the 46 patients, that for patients with clinical T1 (n=23), and that for those with clinical T2/3/4 (n=23) were 35.6%, 55.4%, and 16.3%, respectively. The five-year cause-specific survival for the 46 patients, that for patients with clinical T1, and that for clinical T2/3/4 were 69.8%, 95.2%, and 41.5%, respectively. The five-year local control rates for patients with T1 and T2/3/4 lesions were 82.9% and 32.4%, respectively. The sites of first treatment failures were local-regional for 16 patients and distant organs for 2 patients. Five patients (11%) developed grade 3 acute esophagitis according to the EORTC acute radiation morbidity scoring criteria. Late complications in the esophagus were grade 3 for 3 patients (7%) and grade 4 for 2 patients (4%) according to the EORTC late radiation morbidity scoring criteria.

Conclusions: The results suggest that proton radiation therapy is an effective modality for patients with locally confined esophageal cancer. Further studies are needed to determine the optimal total dose, fractionation schedules, and best combinations of protons and conventional x-rays.

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Docetaxel and cisplatin combination chemotherapy in patients with advanced or metastatic gastric cancer: results of a multicentre phase II study

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Background: The aim of the present study was to evaluate the efficacy and tolerability of docetaxel and cisplatin in patients with advanced or metastatic gastric cancer.

Materials and methods: Metastatic disease was present in 85% of patients and 15% of patients had locally advanced gastric carcinoma. Eastern Cooperative Oncology Group performance status scores of 0, 1 or 2 were noted in 25%, 51% and 25% of patients, respectively. The median age was 59 years (range: 31-72 years). Patients received docetaxel 75 mg/m^2 and cisplatin 75 mg/m^2 on day 1 every 3 weeks for a maximum of 9 cycles.

Results: A total of 112 patients have been recruited. To date, toxicity, tumour response and survival data are available for 94 patients. The median number of cycles administered was 5 (range: 1-9). The overall response rate was 26.6% (complete remission: 4/94 (4.3%) patients, partial remission: 21/94 (22.3%) patients). A total of 34 (36.2%) patients showed disease stabilisation and cancer progression was seen in 27 (28.7%) patients. Tumour response was not evaluable in 8 (8.5%) patients. Haematological and nonhaematological toxicities were mild and occurred infrequently. World Health Organization defined grade 3 nausea/vomiting and peripheral neurotoxicity were observed in 12.6% and 6.1% of patients, respectively; grade 3-4 neutropenia was seen in 39.2% of patients; grade 3-4 infections, with or without neutropenia, occurred in 6.1% and 5.2% of patients, respectively. The estimated median survival was 9.7 months.

Conclusions: The combination of docetaxel and cisplatin was well tolerated and resulted in high tumour response rates in patients with gastric carcinoma. At present we are performing a phase III trial comparing the combination of docetaxel and cisplatin with the standard combination of cisplatin and 5-fluorouracil.

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Prognostic value of KIT mutation in localized gastrointestinal stromal tumors (GIST)

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Background: GIST is the most common mesenchymal tumor arising in the gastrointestinal tract. Recently, constitutional activation of *KIT* by mutation is shown to be a key pathogenetic mechanism in GIST. However, the prognostic significance of *KIT* mutation has not been defined yet.

Material and methods: The pathologic slides of primary mesenchymal tumors of the gastrointestinal tract experienced at the Asan Medical Center during the period of 1990-2001 were reviewed with immunohistochemical analysis with a panel of antibodies against CD117, CD34, desmin, SMA, and S100. After diagnosis of GIST was made, genomic DNA was extracted from formalin-fixed, paraffin embedded tumor tissues. PCR amplification and sequencing of the exon 9, 11, 13 and 17 were performed to detect *KIT* mutation. Clinical data of the cases were reviewed

Results: Total 91 cases of localized GIST was found to have curative resection between 1990 and 2001 and paraffin blocks were available for mutation analysis. The median age of the patient was 56(range:30-83). The stomach(57%) and small bowel(23%) were the most frequent primary sites. The median tumor size was 6 cm(range: 0.4-23). Exon 11 and 9 mutations were observed in 63 and 2 patients, respectively. However, no mutations were detectable in exon 13 and 17. Thus, *KIT* mutation rate was 71% in this patient population. The exon 11 mutations included in-frame deletions(38 cases), missense mutations(21 cases) and insertion or duplication(4 cases). Histologically, The cases with *KIT* mutation showed higher mitotic counts and more dense cellularity. For all 91 patients, the 5-year recurrence-free survival(RFS) and overall survival were 34% and 75%, respectively. The 5-year RFS for cases with *KIT* mutation were 23%, compared with the 75% for cases without *KIT* mutation(p=0.0028). Statistically significant RFS were also observed favoring mitotic counts of fewer than 5 mitoses/50 HPF, spindle-cell morphology, 5 cm or smaller tumors. Multivariate analysis with Cox 's proportional hazard model indicated that mitotic counts(≥5/50HFP; hazard ratio(HR)=6.1) and presence of *KIT* mutations(HR=10.6) were associated with recurrence.

Conclusion: The presence of *KIT* mutation as well as high mitotic count was an independent poor prognostic factor for the recurrence after curative resection of the localized GIST.

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Size and geometry of radiofrequency lesions: crucial knowledge to prevent local recurrence

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Background Radiofrequency (RF) coagulation of irresectable liver tumours has a local recurrence rate which varies among series but may be as high as 60%. We hypothesised that overestimation of expected coagulation size and a too ideal image of a perfect spherical geometry may have contributed in cases of failed local tumour control.

Material and methods: An exhaustive literature search (articles and abstracts) was carried out for the period from January 1st 1990 to December 31st 2002. The RF companies were asked to provide all available data. For each electrode and protocol, size and geometry of single-cycle thermal lesions were registered.

Results: No information at all on size and geometry was available for 17 of the 28 current commercial electrodes. Many descriptions of RF lesions are limited to the mean transverse diameter. With normal blood flow, diameter of lesions is often smaller than suggested by the length of the electrode tip or the diameter of the deployed prongs. Lesions are rarely perfect spheres but either ellipses or flattened spheres. Distortion of the RF lesion by nearby blood vessels is very common. Fusion of thermal zones between prongs of expandable electrodes can be incomplete. Blood flow interruption using a Pringle maneuver yields larger lesions that are less distorted and more complete.

Conclusion: Accurate knowledge of size and geometry of RF lesions is crucial to prevent local recurrence. For many electrodes that are currently used in patients, no or insufficient experimental data are available. RF companies are urged to produce and provide these data before releasing electrodes for patients' use on the market.