

patients were delayed with 1-2 courses CHT. Clinical target volume (CTV) of the patients includes the preserved breast with the underlying thoracic wall of the patients with N- and N+ up to 3 positive lymph nodes. For all patients three-CT transversal scans were made for precise outlining of the CTV and the organs at risk. The target volume were irradiated with two tangential field (60 Co) without boost for the tumour bed to the prescribed total dose of 50Gy in 25 fraction for 5 weeks. When the supraclavicular fossa was included, it was treated with a total dose of a 44Gy by adding a "third" field. The adjuvant system treatment includes VI courses chemotherapy and Tam in patients, with SR+.

Results: 5 year local control in 96.0% of patients, excellent 51.6% and good 41.0% cosmetic results, were accomplished, as in only 1.6% post-radiotherapy pulmonary fibrosis was diagnosed. This method is accessible and feasible to all patients. It allows homogenous irradiation of CTV and sparing the organs at risk. The combination of unfavourable factors of the tumour in a group with high risk essentially reduces the local control and the overall survival. The aesthetic results depend only on the volume of the removed tissues and on the type of surgical incisions for the primary tumour and the axillary dissection. BCT proved a better local control versus M, but the 5 years overall survival was not significantly different in the two treatment methods - 95.8% versus 92.5%.

Conclusions: The individualised CT planning and the applying of a 50Gy dose without "boost" in the tumour bed leads to better treatment, cosmetic results and minimal late complications. This imposes the BCT as a successful alternative of the modified radical mastectomy.

791

POSTER

A study of 40 patients with nasopharyngeal cancer (stage 1 to 4) treated with radiation therapy using CT simulation with a single isocentre technique and 3 dimensional planning

M.I.A. Wahid¹, A.Z. Bustam², F. Hayat², P. Rassiah², A. Bustam³, U. Prasad⁴. ¹Pantai Medical Centre, Radiotherapy and Oncology, Kuala Lumpur, Malaysia; ²University Of Malaya Medical Centre, Clinical Oncology, Kuala Lumpur, Malaysia; ³University Of Cambridge Medical School, Medicine, Cambridge, England; ⁴University Of Malaya Medical Centre, ENT, Kuala Lumpur, Malaysia

Purpose: Nasopharyngeal Cancer (NPC) is a very common cancer affecting mainly the Chinese ethnic group in Malaysia. The incidence is approximately 25 per 100,000 population. Treatment simulator is the main planning tool for radiation treatment of NPC. At the University of Malaya Medical Center (UMMC), CT Simulation using a single isocentre and 3 dimensional planning was used in a pilot study to plan NPC. In this paper we analysed the treatment outcome using the planning technique, which we designed.

Materials: From 1998 to 1999, 40 patients with NPC were planned at UMMC using CT simulation. 30% of the patients were stage 1 and 2, 70% were stage 3 and 4 disease. The patients were planned with their neck extended and immobilized in a beam directing shell. 4mm to 5 mm scans slices were performed to include the head and upper chest. A single isocenter was chosen in the neck and marked on the patient. Critical structures and tumour volume were outlined on each CT slice on the CT simulation planning console. 3 beams were used to treat the post nasal space and a single anterior beam for the neck using a half beam block technique. Shielding of structures were "drawn" on the digital reconstructed radiograph (DRR) and the planned volume checked by scrolling through the axial, sagittal and coronal cuts on the CT simulation console. The plan was exported to a 3D treatment planning system for final dosimetry. Each field was verified on electronic portal image and compared with the planned digital reconstructed radiographs prior treatment.

Results: CT simulation was useful in defining the anatomy, outline of critical structures, tumor and target volume with a higher degree of accuracy compared to conventional simulation. Of the 40 patients in the study group, 1 defaulted treatment. 100% of the 39 patients who completed treatment achieved complete or major response at the end of radiation treatment. 1 patient died early following adjuvant chemotherapy. The local control rate at 24 months was 100%. 2 patients had systemic relapse at 12.5 and 18 months of follow up and treated with salvage chemotherapy. The survival rate at 2 years was 95%.

Conclusion: CT simulation provides a superior anatomical and tumor definition in three dimensions compared to conventional simulation. The initial findings indicate that it is highly effective in controlling early as well as advanced stages of NPC. In UMMC, CT Simulation has now replaced the conventional planning method of using a treatment simulator.

Genitourinary cancer

792

POSTER

Combination Studies with the Farnesyltransferase Inhibitor R115777 and Chemotherapy Agents

A. Adjei, L. Bruzek, C. Erlichman, R. Marks, G. Croghan, J. Sloan, J. Reid, H. Pitot, R. Goldberg, L. Hanson. Mayo Clinic, Rochester, USA

Farnesyltransferase (FT), an enzyme that catalyzes the first step in the post-translational modification of ras and other important polypeptides involved in cell proliferation, has emerged as an important target for cancer therapy. R115777, one of the first FT inhibitors to undergo clinical testing, has shown promising activity in leukemia and breast cancer. Phase III studies have been completed with this compound. We examined the effect of combining R115777 with several classes of antineoplastic drugs in various human tumor cell lines. Colony forming assays were utilized to examine the effect of treating cells with cisplatin (CDDP), melphalan, gemcitabine (GEM) or 5-FU in combination with R115777 in a number of cell lines, including the A549 NSCLC line as well as T98G glioblastoma, MCF-7 breast, BxPC-3 pancreatic and HCT-116 colon carcinoma cell lines. The combination of R115777 and CDDP exhibited synergy that is dependent on sequence of administration and on the model system utilized. The combination of R115777 and GEM was additive, while the combinations with melphalan and 5-FU were less than additive. Based on these findings, we undertook a phase I trial to define the MTD, toxicities, PK, and clinical activity of the combination of R115777 (po BID d1-14), GEM (d1, d8), and CDDP (d1), on a 21-day cycle in patients (pts) with advanced cancers. To date, 25 pts have received 68 cycles of treatment through 5 dose levels. The most common and dose-limiting toxicity is neutropenia. Thrombocytopenia (10 grade 3, 1 grade 4), rash (2 grade 3), nausea (8 grade 2, 1 grade 3), and fatigue (1 grade 2). Six objective responses (5 PRs, 1 CR) have been documented in 18 evaluable patients. PK and in vivo correlates of FT inhibition at the MTD (R115777 300 mg po BID, GEM 1000 mg/m², CDDP 75 mg/m²) will be presented. Supported by grants from NIH (CA77112, RR00585) and Janssen Research Foundation.

793

POSTER

Results of exclusive brachytherapy in the treatment of carcinoma of the penis

K. Kanfir¹, C. Haie-Meder¹, M. Albano¹, B. Court², P. Wibault¹, C. Breton-Callu¹, R. de Crevoisier¹, A. Gerbaulet¹. ¹Department of Radiation Oncology; ²Department of Urology, Institut Gustave-Roussy, 94805 Villejuif, France

Purpose: To assess the role of exclusive brachytherapy (BT) as a conservative approach in the treatment of penis carcinoma.

Methods: Between 1973 and 1995, 145 patients (pts) with penis carcinoma were treated with a conservative approach consisting of exclusive BT. The median age was 58 years (20-83). A history of phimosis was found in 27% of the pts, and precancerous lesions were observed in 30% of the pts. Stage distribution was: T1 in 107 pts (74%), T2 in 18 pts (12%), T3 in 11 pts (8%) and impossible to assess in 9 pts. Inguinal nodes were present in 17 pts (12%). One patient presented with metastases. One hundred and twenty pts (83%) had circumcision prior to BT, the 25 remaining pts had already a history of previous circumcision: BT was performed using the hypodermic needles technique. The mean radioactive line number was 6 (2-18) in a mean number of 2 planes (1-5). The mean radioactive length was 26 cm (4-108). The mean delivered dose according to the Paris system rules was 67 Gy (20-80). The mean treated volume was 28 cm³ (5-137). Treatment of clinically present inguinal node consisted of node dissection completed by external irradiation, depending on pathologic findings.

Results: Of the population, 22 (15%) printed a local relapse, 14 of them (64%) being controlled by either a partial amputation (10 pts), a total amputation (2 pts) or a new BT (2 pts). Twenty-five pts (17%) presented an inguinal lymph node relapse. Eleven of the 25 pts (44%) were controlled by either lymphadenectomy or external irradiation or both. Eighteen pts (12%) presented metastases. A total of 79 late complications (all grade) (54%) were recorded. Urethral stricture and necrosis were the two most common complications. In 29 cases (20%) complications required surgery, consisting of partial amputation. With a median follow-up of 120 months, 79 pts (55%) are alive. Twenty-two pts died of tumor.

Conclusion: BT gives good local control in the conservative approach of penis cancer. The major carcinologic event was represented by inguinal lymph node relapse, showing the need for a more systematic surgical approach with inguinal dissection.