

512

POSTER

Local superficial radiotherapy in the management of primary cutaneous lymphoma.

B. Navalpoto¹, C. Conill¹, I. López², I. Toscas¹, J. Fernández-Ibiza¹, S. Jorcano¹, T. Estrach². ¹ Hospital Clínic i Universitari, Radiation Oncology, Barcelona, Spain; ² Hospital Clínic i Universitari, Dermatology, Barcelona, Spain

Background: We evaluate the recommendation and response to local superficial radiotherapy in primary cutaneous lymphomas.

Material and methods: Between 1992 and 2000, 27 patients diagnosed with cutaneous lymphomas were treated with local superficial radiation. The mean of age was 53 years (range 25-90). There were 17 males and 10 females. Thirteen cases corresponded to cutaneous T-cell lymphomas (CTCL) and 14 to cutaneous B-cell lymphomas (CBCL). Orthovoltage radiotherapy of 100 Kv (8 mA, filter 1.7 mm Al, source skin distance 10 cm) was used, with a safety margin of 1 cm of clinical normal skin. The mean total dose of irradiation was 24 Gy (median 20 Gy; range 15-30 Gy), 200 cGy daily fractions, 5 days a week.

Results: The immediate response to the treatment was satisfactory in all the cases. In 24 patients (89%) complete response was obtained in the irradiated lesion and in 3 cases (11%) the response was partial. Local recurrence was not observed in the treated area during the follow-up period, except in 1 case who relapsed after 7 months coinciding with the appearance of new lesions outside the irradiated area. With a mean follow-up of 25.4 months (range 1-100 months), 14 patients (52%) were alive without evidence of disease (6 CTCL and 8 CBCL), 5 patients (18%) had relapse cutaneous disease or systemic progression (3 CTCL and 2 CBCL) and 8 patients died (30%), 7 due to progression (26%) and 1 the cause was not related with the disease.

Conclusions: Local superficial radiotherapy is highly effective in cutaneous lymphomas, well tolerated and produces good cosmetic results.

513

POSTER

Total body irradiation; the translation technique: the moving beam approach.

C. Zabatis¹, T. Koligiliatis², S. Xenofos³, K. Pistevou-Gobakis⁴, E. Kypraiou¹, A. Fotopoulou¹, G. Soulimioti¹, E. Grigoriadis¹, G. Tsimopoulos⁵, K. Beroukas¹. ¹ St. Savvas Anticancer Hospital, Radiation Oncology Dept, Athens, Greece; ² St. Savvas Anticancer Hospital, Medical Physics Dept, Athens, Greece; ³ St. Savvas Anticancer Hospital, Medical Physics Dept, Athens, Greece; ⁴ Ahepa University Hospital, Radiation Oncology Dept, Thessaloniki, Greece

Introduction: In TBI, the critical organs are the lungs. Attenuators have to be prepared and used for lung sparing. The transmission through each attenuator depends on the anatomy of each patient and on the protocol followed. According to our protocol, the lung must receive 7.5Gy out of 12Gy in five successive sessions.

Materials and method: Once the necessary data, obtained under TBI conditions, are implemented to a commercial 3D-TPS, the dose distribution inside each lung can be studied in detail. In the moving beam approach, which simulates the moving couch technique, anterior and posterior, partially overlapping beams are employed, scanning the full length of the patient. The average lung dose increase, relative to the midline dose at the level of the umbilicus, is then accurately determined. The ratio of the clinically allowed lung dose to the computed average lung dose dictates the beam transmission through an individually tailored lung attenuator. This transmission then dictates the thickness of the Cerrobend lung attenuator.

Results: This approach has been applied to 35 patients. In-vivo diode measurements show very good agreement (less than 3% accuracy) with the computed lung dose. A varying thickness attenuator (maximum thickness variation of 2mm Cerrobend), taking the patient's external contour and lung anatomy into account, further improves the lung dose distribution. For the patients studied so far, the lung attenuator thickness is 10±2 mm of Cerobend.

Conclusions: Once the data under TBI conditions are implemented to a commercial 3D-TPS, reliable lung sparing in TBI can be achieved. Also, electron beam simulation results in a combined dose distribution both from photon and electron beams, the latter ones being used to compensate for the reduced thoracic wall dose due to the presence of lung attenuator.

514

POSTER

Influence of initial electron beam characteristics on Monte Carlo calculated absorbed dose distribution for linac photon beam.

A. Tzedakis¹, J. Damilakis², M. Mazonakis¹, J. Stratakis², H. Varveris³, N. Gourtsoyannis⁴. ¹ University Hospital of Heraklion, Medical Physics, Heraklion - Crete, Greece; ² University of Crete, Depart. of Medical Physics, Heraklion - Crete, Greece; ³ University of Crete, Depart. of Radiotherapy, Heraklion - Crete, Greece; ⁴ University of Crete, Depart. of Radiology, Heraklion - Crete, Greece

Background: the aim is to investigate how the initial electron beam characteristics affect the relative adsorbed dose distribution, obtained from a full Monte Carlo simulation of a linear accelerator treatment head.

Material and methods: The EGS4 user-codes BEAM and DOSXYZ were used for simulation of the treatment head and the delivered dose in a water phantom, respectively. Several initial electron beams with different radial distribution and energy spread (Gaussian distribution) were studied. Calculated percent depth doses (PDD) of 10x10 cm² at 100 cm SSD and dose profiles curves of 35x35 cm² at 100 cm SSD for 10 cm depth, were compared with measurements. Local dose differences were used, instead of differences normalized to maximum dose, as a more sensitive measure of dose difference, especially at deeper depths.

Results: For the radial distribution of initial electron beam that we examined, the PDD's have been shown to be insensitive. On the contrary, the dose profiles were affected up to 8% in the umbral region (80% of the field) and up to 20% in the fall-off region of the field. For the energy distribution of initial electron beam, the build up region of PDD's was affected by 3% for energy distribution greater than 10% FWHM. On the other hand, dose profiles have negligible effect on energy distribution of initial electron beam.

Conclusions: The radial distribution of electron beam has a great effect on the relative absorbed dose distribution. On the contrary, dose distribution past the build up region, were unaffected from energy spread of initial beam of electrons.

515

POSTER

Radiotherapy of primary cutaneous B-cell lymphoma - a clinical follow-up study of 35 patients

H.T. Eich¹, D. Eich², O. Micke³, R. Skripnitchenko¹, H. Stuetzer⁴, T. Krieg², R.-P. Mueller¹. ¹ University of Cologne, Department of Radiation Oncology, Cologne, Germany; ² University of Cologne, Department of Dermatology, Cologne, Germany; ³ University of Muenster, Department of Radiation Oncology, Muenster, Germany; ⁴ University of Cologne, Medical Statistics, Cologne, Germany

Background: Primary cutaneous B-cell lymphomas (PCBCL) are rare and constitute approximately 25% of all cutaneous lymphomas. In the literature conflicting data exist on the optimal treatment modality regarding the efficacy and the relapse rate after radiotherapy (RT) or polychemotherapy. In order to evaluate the efficacy of RT, patients' data of two centers were analysed with reference to new reports in literature.

Materials and methods: From April 1984 to June 2001, 35 patients with PCBCL, 17 men and 18 women aged between 27 and 86 years, were treated with definite RT (29/35 patients) or postoperative RT (6/35 patients). According to the EORTC classification for PCBCL, this study group included 21 patients (60%) with primary cutaneous follicular center-cell lymphoma, 7 (20%) with primary cutaneous immunocytoma, 4 (11%) with primary cutaneous large B-cell lymphoma (PCLBCL) of the leg and 3 (9%) provisional types.

Results: 34 patients achieved an initial complete response after RT. In one additional patient RT was interrupted after 16 Gy because of fulminant pneumonia. 11/35 (31%) patients developed cutaneous relapse after a median of 11 months. 3 patients developed an in-field, 8 patients an out-field relapse. After a median follow-up period of 52 months 27/35 patients are alive, whereas 8/35 patients died (3 resulting from PCBCL and 5 unrelated to PCBCL). The 5-year overall survival rate was 75% (95% CI: 65-85%). The five-year relapse-free survival was 50% (95% CI: 32-68%). Uni- and multivariate analysis revealed the histologic subtype PCLBCL as an unfavorable prognostic factor.

Conclusions: RT of all visible skin lesions is an effective treatment for localized PCBCL. In patients presenting with skin lesions at multiple non-contiguous anatomic sites and with cutaneous relapses RT is recommended as well as the preferred treatment.