

practice, a very large number of particle "histories" have to be simulated to attain sufficient statistical accuracy, and various approximations (e. g. condensed history, variance reduction) have been introduced in the process of adaptation of MC codes to the special needs of treatment planning. Such codes have become known as V(oxel)MC and X(ray)VMC, M(acro)MC, S(uper)MC, MCPAT(ient...). These will be described in detail and performance characteristics as well as treatment planning examples given. While the general-purpose MC codes result in computing times per case of the order of several hours, the special treatment planning codes reduce this time to around an hour or even much less on modern workstations or Pentium-based PCs.

65. PHYSICAL AND CLINICAL DOSIMETRY BY MEANS OF MONTE CARLO USING A PROCESS DISTRIBUTION TOOL

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The choice of the most appropriate strategy in a Radiotherapy treatment is mainly based on the use of a planning system. With the introduction of new techniques (conformal and/or small fields, asymmetrical and non coplanar beams, true 3D calculations, IMRT) the trustworthiness of the algorithms is being questioned. An alternative verification procedure is every time more necessary to warranty a treatment delivery. The reliability of Monte Carlo is generally accepted. However, its clinical use has not been operative due to the high CPU times needed. During the last few years our objective has been focussed to reduce this time by means of new process distribution techniques. This drop has made it feasible, not only the physical dosimetry under special conditions, but also a numerous variety of clinical cases: photon and electron conformal fields, Radiosurgery and IMRT. The carried out procedure is presented. Furthermore, experimental dosimetry data as well as conventional TPS calculations are compared with Monte Carlo simulations.

66. LATE EFFECTS OF CNS PROPHY- LACTIC IRRADIATION IN CHILD- HOOD DUE TO LLA USING MAGNETIC RESONANCE SPECTRO- SKOPY. (PRELIMINARY REPORT)

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Purpose: The aim of this study was to evaluate changes in magnetic resonance imaging (MRI) and magnetic resonance spectroscopy (MRS) of the brain in survivors with Acute Lymphoblastic Leukemia to assess neurotoxicity follow profilactic brain irradiation.

Methods: Ten from 100 patients with LLA treated in Department of Pediatric Hematology from 1990 to 1995 and irradiated in Centre of Oncology were included in MRI and MRS studies. The study group included 6 male and 4 female. All patients had been irradiated for brain using fraction dose of 1,8 Gy up to total dose of 18 Gy and had received MTX based chemotherapy in doses depending on level of risk. Two of them were included in low risk and eight in intermediate risk.

Results: MRI of brain was abnormal in 5 cases. There were mild white matter changes. The changes were seen in H- MRS metabolite ratios. In one of these cases we observed a impair of verbal functions.

Conclusions: The MRS could be valuable method to access brain tissue metabolism after radiotherapy. That noninvasive method may be recommended for children with LLA to observe neurotoxicity of profilactic irradiation.

67. RADICAL RADIOTHERAPY OF MUSCLE-INVADING BLADDER CANCER (BC): A RETROSPECTIVE ANALYSIS OF 49 PATIENTS

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Growing interest in the use of combined modality approaches for bladder-sparing procedures force radiation oncologists to optimise methods of radical radiotherapy. Since

treatment policies have changed considerably over the last years, in this retrospective study we analysed feasibility of radical radiotherapy and outcomes of patients treated in our institution between 1992 and 2000. Study group comprised 49 consecutive BC patients aged 43 to 80 years (median 71), including three cases with clinically involved pelvic lymph nodes. There were 45 urothelial, and four other types of cancer (grade 1- four, 2 - 21, 3-nine, and unknown -14 cases). Six patients were referred for radiotherapy after nonradical operation. Treatment was delivered with the use of 60Co or LA five days a week, without planned interruptions. Thirty-two patients received elective irradiation of the pelvic lymph nodes to the dose 40 to 48Gy, followed by the boost to the bladder to the total dose 60 to 66Gy. Seventeen patients received total dose of 58 to 62Gy to the bladder and perivesical tissue. Fraction doses ranged from 1.8 to 2.0Gy. Treatment was prematurely stopped due to disease progression (PD), patient refusal, uraemia, in one case each, and intractable diarrhoea in six cases. After a median follow-up of 14 months (range 1 - 102) 23 patients died of PD. Median survival in the entire group is 159 months. Results of this study confirm relative efficacy of radiotherapy in BC. Further refinement of radiotherapy techniques is warranted to improve the outcome.

68.

ZASTOSOWANIE PAMIDRONIANU U CHORYCH Z PRZERZUTAMI RAKA DO KOŚCI

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Od października 1999 roku oprócz radioterapii zastosowaliśmy leczenie pamidronianem sodowym u 32 chorych z osteolitycznymi przerzutami raka do kości. Przyjęliśmy dawkę 90mg we wlewie dożylnym co 4 tygodnie, łącznie podano 166 kroplówek. Wiek chorych wahał się od 33 do 81 lat (mediana 62 lata). U 12 pacjentów rozpoznano raka gruczołu krokowego, u 6 - nerki, u 6 - sutka u kolejnych 6 - płuca, u 1 - ślinianki, a u dwóch nie znaleziono punktu wyjścia nowotworu (u jednego pacjenta rozpoznano dwa nowotwory - płuca

i gruczołu krokowego). Dwunastu pacjentom podano jeden lub dwa wlewy dożylnie pamidronianu i w tej grupie aktualnie nie możemy oceniać wyników leczenia. Dwudziestu chorym podano większą ilość kroplówek (3 - 17). W tej grupie 13 nadal pozostaje w trakcie leczenia, z wycofaniem się bądź znacznym zmniejszeniem dolegliwości bólowych ocenianych według VAS (początkowo 4-8, aktualnie 0-3). Natomiast u 7 przerwano leczenie ze względu na progresję choroby i pogorszenie stanu ogólnego. U kilku chorych wykonane kontrolne zdjęcie radiologiczne kości wykazały częściowe uwapnienie przerzutu.

Obserwowaliśmy niewiele i słabo nasilonych objawów ubocznych leku (6 chorych - objawy grypopodobne, 2 - nudności).

Powyższa analiza zachęca do kontynuowania stosowania pamidronianu dwusodowego u chorych z przerzutami do kości w przebiegu raka o różnej lokalizacji.

69.

VARIANTS OF PREOPERATIVE THERMORADIOTHERAPY IN LOCALLY ADVANCED BREAST CANCER PATIENTS

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To improve treatment results of locally advanced breast cancer 60 patients with T3-4N1-2M0 TNM stage were undergone complex treatment at the Dept. of Radiotherapy of the CRC. The treatment complex included: radio- or thermoradiotherapy and polychemiohormone-therapy. All patients were subdivided into 3 groups. The first group of 20 patients received radiotherapy only, the second one (18 patients) - thermoradiotherapy, and the third group of 22 patients - thermoradiotherapy plus additional local irradiation of the primary and/or big lymphnode metastases. Radiotherapy was with 2 Gy fractions 5 times per week to the primary tumor and lymphcollectors. Total dose was 40-50 Gy. Results of the therapy were evaluated after 3-4 weeks and the patients were received a surgery. The second group of the patients received local hyperthermia after 2 weeks of conventional treatment. Primary tumor and big metastatic nodes were heated. Hyperthermia was performed 2 times per week, with duration of 60 minutes, 3 hours after irradiation. Temperature in tumor was 43-45C. In the third group of patients additional boost to tumor