THERE IS NO ADDITIONAL ROLE FOR FLT-PET/CT SCAN IN PAEDIATRIC BRAINSTEM TUMORS.

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Purpose: The combination of short symptom duration, neurological features and MR-imaging is unable to select the small group of patients with a potential more indolent tumor arising in the pons. Although recent publications suggest limited morbidity and mortality after brainstem biopsy, these invasive procedures are still reserved to dedicated centers. We tried to develop a non-invasive method, based on the PET proliferation tracer fluorothymidine ((18)F-FLT PET), to obtain additional information on tumor behavior at diagnosis.
Materials: Between October 2006 and March 2009, five patients (age 3.514.0) presenting with a primary pontine lesion, underwent MR-imaging and additional (18)F-FLT PET/CT-scan. Three patients with all characteristics of a diffuse intrinsic brainstem glioma (DIPG), one patient with a diffuse brainstem lesion and symptoms lasting >12 months before diagnosis and one patient with a pathology proven pilocytic astrocytoma participated in this pilot study.
Results: No proliferation activity on (18)F-FLT PET/CT scan was observed in 3 patients without contrast enhancement on MR-imaging; 2 of them died from DIPG within 12 months after diagnosis. In one patient with DIPG, proliferation activity matched perfectly to the focus of contrast enhancement on MR-imaging. High uptake on (18)F-FLT PET/CT was seen in one patient with a pathology proven pilocytic astrocytoma (WHO gr.1).
Conclusions: In our analysis, proliferation activity on (18)F-FLT PET/CT imaging was limited to the focus of blood-brain barrier disruption on MR-imaging and was unable to differentiate a pathology proven low-grade from high-grade brainstem tumor. Because additional information on tumor behavior at diagnosis by (18)F-FLT PET/CT-scan was lacking, this pilot study ended early.

1103 poster

TOMOTHERAPY FOR CRANIOSPINAL IRRADIATION IN MEDULLOBLASTOMA PAEDIATRIC PATIENTS: PRELIMINARY RESULTS AND ACUTE TOXICITY.

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Purpose: Neuroaxis irradiation continues playing a decisive role in multimodality management of medulloblastoma patients. Tomothearpy is a new radiation technique that allows minimizing the technical and dosimetric difficulties reported for this treatment. We analyze our preliminary experience (acute toxicity and feasibility) in craniospinal irradiation for medulloblastoma paediatric patients.
Materials: From Dec/06, 16 patients with median age of 6 years (range, 3-14) received tomotherapy treatment for medulloblastoma. 6 were classified as high risk and 10 as standard risk. A patient was treated because of isolated local relapse and other patient received reirradiation because of medullar canal relapse. Karnofsky's Index was <80 in 6 cases. Surgery previous radiation consisted in complete resection in 11 patients, partial resection in 4 patients (residual tumour >1.5 cm) and biopsy only in one case. Ten patients needed daily sedation for treatment delivery. 6 patients (37.5%) received previous chemotherapy and 10 (62.5%) weekly concomitant Vincristine. Three PTVs were initially contoured (whole brain, cribiform plate and medullar canal with inclusion of entire vertebral body) with a prescription dose of 23.4Gy in standard risk and 36Gy in high risk. A forth PTV was defined (tumour bed/residual tumour) with a prescription dose of 54Gy in 15 cases. Acute toxicity was reported using the RTOG scale.
Results: Eight patients (50%) developed skin toxicity grade 1, 7 (44%) emesis grade 2, two (12.5%) conjunctivitis grade 1, one (6%) oral mucositis grade 1 and one (6%) faringitis grade 2. None acute pneumonitis event was registered. Haematological toxicity reported was anaemia grade 2 in 5 patients (31%), thrombocytopenia grades 2 and 3 in 4 (25%) and 2 (12.5%) patients respectively and neutropenia grades 2, 3 and 4 in 1 (6%), 7 (44%) and 4 (25%) cases respectively. Adequate covertures were reached for all PTVs in all cases (D95>95%).At the moment, twelve patients (8 of them with surgical complete resection) have been evaluated for response. With a median follow-up of 30 months (range, 7-35) from diagnosis and 10 (range, 2-27) from the end of radiotherapy, 8 (67%) are in complete response and 1 patient (8%) continues chemotherapy after partial response. Three patients with previous gross total removal of primary tumour have suffered from local relapse.
Conclusions: Tomotherapy is a feasible technique for paediatric craniospinal irradiation with adequate covertures in PTVs and non haematological acute toxicity profiles. Inclusion of entire vertebral body in target volume in patients with intensive systemic therapy, probably implies greater levels of acute haematological toxicity. Larger series and greater follow-up are needed to determine the really therapeutic efficacy in the different possible subgroups.

1104 poster

TOMOTHERAPY IN PAEDIATRIC PATIENTS. GENERAL INITIAL EXPERIENCE

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Purpose: Tomotherapy makes possible a High dose distribution with a healthy organ preservation. Which makes this technique very attractive for radiation therapy treatment of young patients. We analyse the general initial experience of our institution
Materials: Until December 2009, 62 paediatric patients with radiation therapy indications have undergone Tomotherapy treatment in the frame of multidisciplinary protocols. The average age was of 6 years old (1-14). In 37 patients (60%) CNS tumours were concerned (irradiation of neuro-axis in 23 patients). The irradiation was applied as an initial treatment In 48 cases (77%), and on relapses in 14 cases (23%). CT-MR fusion was used for target definition in 27 cases (44%) and PET-CT in 13 (21%). Sedation was necessary at every treatment fraction in 36 patients (58%). Previous or concomitant Chemotherapy interested 45 cases (72%).
Results: Global acute toxicity according to RTOG scales was analysed: grade 2 toxicity was recorded in the following localizations: 1 ocular, 1 ear, 2 skin, 1 oral mucosa, 1 pharynx, 17 digestive/emesis (27%), 7 anaemia (11%), 5 neutropenia (8%) and 7 (11%) thrombocytopenia. A patient had grade 3 emesis. Grade 3 haematological toxicity was recorded in 13 patients: 2 anaemia (3%), 10 neutropenia (16%) and 3 thrombocytopenia (5%). There were 5 cases (7%) of grade 4 neutropenia. 11 of the 17 patients with grade 2 emesis and the patient with grade 3 emesis had craniospinal irradiation. The 2 patients with grade 3 anaemia, 9 out of 10 with grade 3 neutropenia and 2 of the 3 with grade 3 thrombocytopenia had craniospinal irradiation. 4 of the 5 grade 4 neutropenia cases also belonged to this group.There were no adverse or secondary effects of sedation. The response of 46 patients had been analyzed. 27 (58%) do not present any evidence of illness, 4 (7%) showed partial response and 6 (14%) proved to be in a stable state.
Conclusions: Tomotherapy allowed manageable levels of toxicity in paediatrics. Despite of evident immediate advantages of IMRT-IGRT techniques, an exhaustive long-term follow-up has to determine its actual benefits for this group of patients.

Clinical/Disease sites : Palliation/Supportive care/Patient support

1105 poster

DESCRIPTION OF A SERIES OF PATIENTS SUBMITTED TO PALLIATIVE RADIOTHERAPY IN THE SERVICE OF ONCOLOGY RADIOTHERAPY OF THE UNIVERSITY HOSPITAL OF SALAMANCA

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Purpose: Describe the socio-demographic and clinical characteristics of a series of patients undergoing palliative radiotherapy in radiation oncology service at University Hospital in Salamanca.
Materials: We performed a descriptive cross-sectional observational study with 102 patients undergoing palliative radiotherapy. A non-probability sampling was made. We used a data collection tool with the variables of the database radiation oncology service. To measure the performance status, ECOG scale was used.
Results: The mean age was 66 years (SD = 11.981), with a median of 65 and a mode of 61. The 64.7 (66/102) were male and 35.3 (36/102) were female. Marital status: Married / cohabiting 71.6% (73/102); singles 11.8%, widowed 12.7% nd divorced / separated by 3.9%. 72.5% (74/102) of patients had comorbidity of other diseases in addition to their oncologic process. The percentage distribution of the main locations of tumors was: lung 35.3% (36/102); multiple myeloma 11.8%; breast 9.8%, bladder 6.9%, prostate 6.9%, colon-rectum 5.9% and metastases of unknown origin 5.9%.

The result of the radiation was distributed as follows: complete improvement 50% (51/102), partial improvement 10.8% and progression or no improvement 4.9%. The median overall survival was 336 days. There was a statistically significant difference in overall survival between improvement or not of the symptoms and the number of symptoms (one symptom vs. more than one). Similarly, there was significant difference in survival in brain metastases according to ECOG (zero or one vs. more than one)
Conclusions: The response rate of palliative radiotherapy in this cohort evaluated is in line with expectations according to the scientific literature. Overall survival is related to the number of symptoms and treatment response. In brain metastases, overall survival is related to the performance status before beginning treatment

1106 poster

DOCETAXEL CHEMOTHERAPY IN THE MANAGEMENT OF CASTRATE-RESISTANT METASTATIC PROSTATE CANCER: WHAT IS THE REAL PATIENT BENEFIT IN A NON-TRIAL SETTING?

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Purpose: Docetaxel is now established as the first line chemotherapeutic agent for use in hormone refractory prostate cancer (HRPC). In the UK, its use was endorsed by the NICE guidance TA101. We wanted to assess the applicability of the guidance in the non-trial setting of castrate-resistant patients.
Materials: All patients (pts) receiving docetaxel as first chemotherapy between 01/2007 and 09/2008 were identified. Demographic information, data regarding diagnosis, disease characteristics and previous treatments, the no. of cycles received, serial PSA values and imaging studies, clinical response and toxicity were recorded.
Results: 17 pts were identified with HRPC who had received docetaxel. PS was 0-2, median age 69yrs (56-79yrs). Mean duration from diagnosis to commencement of docetaxel was 4.7 yrs (0.4-10.8 yrs) with docetaxel given on average as the 4th line of treatment (2-5). Pre-chemotherapy symptoms where described by 41% of pts. 29% had pain. Evidence of hormone escaping disease was derived from imaging (12%), rising PSA (12%) or both (76%). 41% had metastases of bone only, 18% lymph nodes only, 35% both sites and 6% to another site (liver). Mean (median) PSA at commencement of chemotherapy was 212 (204). All pts were prescribed docetaxel 75mg/m^2 3 weeklyfor 6-10 cycles. Mean cycles delivered was 6.3 (2-10) with 76% completing the planned number. 35% pts had a documented clinical response following completion of docetaxel. 50% had a significant decrease in PSA (>50% for those with pre-treatment PSA >20). 24% pts had evidence of response on imaging. Overall, 71% pts had at least one parameter of response with no signs of deterioration post chemotherapy. 76% pts experienced side-effects although these were generally minor, resulting in treatment interruption (n=3) and dose reduction (n=1). 18% pts however experienced life-threatening complications, in one case leading to death from treatment-related multi-organ failure. Median survival from starting docetaxel was 16 months, with 71% pts alive at 1 year. In those with an initial biochemical response the median response duration of effect was less than 3 months. 24% pts went on to have second line chemotherapy with mitoxantrone at a median of 7 months following completion of docetaxel.
Conclusions: Outcomes using docetaxel in this our locality compare favourably to those found in the trial setting with similar rates of biochemical and clinical response and survival. Our treated population included older, more heavily pretreated group with higher initial PSA values than those included in the TAX-327 study. This may be a factor in the relatively high proportion of adverse effects. We were also concerned at the proportion of pts who proceeded to second line chemotherapy and the relatively short treatment-free intervals in this situation. The data lends support to the validity of the original trial data. However it raises issues over case-mix and the absolute pt benefit.

1107 poster

EFFECTIVENESS AND TOLERANCE OF EXTRACRANIAL STERATACTIC RADIOSURGERY IN TREATMENT PATIENTS WITH LIVER TUMORS .

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Purpose: Evaluation of patients tolerance and liver tumors response after extracranial stereotactic radiosurgery in patients unfit for surgical resection and chemotherapy .
Materials: Material comprised of 74 patients (27 women and 47 men) aged 40-81 years (median 62) with 104 hepatic tumores Total doses varied from 6 Gy to 36 Gy and were delivered using 5 to 10 beams. Total doses varied from 6 Gy to 36 Gy and were delivered using 5 to 10 beams. Volumes of tumors varied from 0.8 to 179,46 cc..In 86 cases tumors were irradiated using single dose varied from to 6 Gy to 18 Gy .In 18 cases patents were irradiated three times with fraction dose of 12 Gy to the total dose of 36 Gy in overall treatment time of 15 days, Method of fractionation , prescribed dose and using gating depended on patients performance status , tumors size and extrahepatic extent .treatment toxicity and tumor response (changes of tumor dimensions) were evaluated 3 months after extracranial stereotactic radiosurgery.
Results: Diameter changes of 34 tumores was evaluated. Remaning cases were not evaluated because other papients did not come to control because of extrahepatic progression. The therapy was performed with no significant adverse symptoms. Severe symptoms (vomits, end elevated hepatic enzymes) were observed in 4 case (patients with primary with big tumor volume 87 and 116,1 cc..)32% (11) tumors decreased after radiosurgery and 52% (18) tumors progressed, 14%(5) had stagnation.
Conclusions: Extracranial stereotactic radiosurgery is valuable, non-invasive palliative treatment modality with slight acute toxicity and acceptable local effectiveness for patient with hepatic tumors, who are not suitable for surgery and/or chemotherapy..

1108 poster

EXTERNAL BEAM RADIOTHERAPY AND RADIONUCLIDE THERAPY IN THE MANAGEMENT OF PAINFUL BONE METASTASES

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Purpose: To evaluate efficacy, toxicity and repeatability of radioisotope therapy, used as exclusive treatment or combined with external beam irradiation (EBRT) for painful bone metastases.
Materials: Between 2001 and 2005, 70 patients have been treated for painful bone metastases at Department of Radiation Oncology, University "Sapienza" Rome: 30 patients with exclusive radionuclide therapy , 15 with external beam radiotherapy followed by radioisotope therapy, 25 with radionuclide therapy first, and external irradiation then. Twelve patients received a second radionuclide treatment. The patients suffered from prostate cancer (25), breast cancer (32) and lung cancer (13). A single i.v. dose of 4 mCi of Strontium-89 was used in 25 cases, while 45 patients were treated with a medium dose of 60-70 mCi of Samarium-153. EBRT was given generally at dose of 30 Gy (300 cGy x 10 fractions) and sometime 20 Gy (400 cGy x 5 fractions). The efficacy of treatment has been evaluated in terms of pain relief (using analogical scales such as Scott-Huskinsson's), quality-of-life assessment, decrease in the use of analgesics and scintigraphic or radiological demonstration of reduction of bone lesions.
Results: Out of 30 treatments performed using exclusive radionuclide therapy, 13 presented a complete remission of pain (43%), while in the 35% we had a partial reduction . Globally, we had a 78% response to radioisotope therapy. Out of 40 patients treated with EBRT, 34 (85%) responded (70% with complete remission, 15% with a partial relief from pain). Pain relief started 1-4 weeks after the initiation of treatment, continued for up to 18 months expecially in patients treated with radionuclide therapy, and was associated with a reduction in analgesic use in many patients. A bone scintigraphy performed within 30-60 days from the treatment showed reduction of hot spots on bone in 62,5% of complete remissions. Thombocytopenia and neutropenia were the most common toxic effects, but they were generally mild and reversible. Repeated doses were effective in providing pain relief in many patients.
Conclusions: EBRT combined with radioisotope therapy seems to get a better pain relief for a longer period of time in comparison with exclusive radionuclide-based therapy. In particular, the combined therapy is very reliable in those patients with multiple bone metastases that for size and anatomical site can give functional impairments (i.e.spinal cord compression).

1109 poster

HYPERTHERMIA WITH IRRADIATION IMPROVED LOCAL CONTROL FOR SUPERFICIAL CANCERS: 3-YEAR SINGLE-CENTER EXPERIENCE

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Purpose: Radiation Therapy (RT) and Hyperthermia (HT) have proved to be an effective treatment for a wide variety of superficially located primary tumors or recurrences also in pre-irradiated areas. We evaluated retrospectively the outcome in our institute after thermoradiation therapy.
Materials: A review (07/2006 - 12/2009) has been carried out for 35 consecutively treated patients with superficial local recurrence or metastases (1 - 3 cm depth) for different cancers: BC chest wall recurrence, prreviously irradiated 40 %, H&N cervical LyN recurrence, previously irradiated 37 %, recurrent, not

previously irradiated malignant melanoma 23 %. Tumors were heated to 42 degrees Celsius for 1 hour, 2x/week with BSD 500 microwave hyperthermia system. RT-volume, RT-dose and fractionation were applied according to our 3 site specific protocols. Dose range was 20 - 60 Gy in 1.8 - 6.0 Gy/fix, with a calculated RT-total dose reduction with previous infield radiotherapy. Median age was 65 (50 - 81) years, median follow up 18 (3 - 42) months. Primary endpoint was clinical or radiological tumor response.
Results: 32 patients were analysed (3 pts. lost from f/u). 77 % of the treated patients revealed a tumor shrinkage > 50 %: complete remission (CR) was seen overall in 37 % (65 % for BC, 15 % H&N, 25 % MM; partial remission (PR) was observed overall in 40 %.
Conclusions: The combination of HT & RT shows excellent local control also in recurrent and pre-irradiated local recurrences in the chest wall or cervical lymph node area and in primary melanoma. Similar results were already reported from other institutions. Prospective multicenter phase III studies (with a randomisation arm including HT) with long-term follow up are needed to confirm these preliminary data.

1110 poster

ICE CREAM AS A NUTRITIONAL SUPPLEMENT IN CANCER PATIENTS: IMPACT ON QUALITY OF LIFE

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Purpose: Aprospective comparative study that assesses the impact of natural ice cream adpated as dietary supplement on the Quality of Life of malnourished patients with cancer
Materials: We present an exploratory prospective observational study comparing two patterns of nutrition:adapted natural ice cream and NS. Patients were selected from two differentHopsitals from the same Oncologic Institute.QLQ was examined by Hospital Anxiety and Depression scale (HADS) and QLQ of the European Organization for Research and Treatment of Cancer (EORTC QLQ C30).Nutrition was determined by G-SGA test
Results: In HAD, significant diffrences were found at the end of the study only in group I, in anxiety (p = 0.023) and depression (p=0.011). QLQ-C 30 revealed statistically significant differences in baseline measures of global dimensions between the two groups (Group I:40.64-56.36 CI; Group II:25.70-43.11; p=0.017). Differences were also present in the social dimension (Group I: 77.42-93.51 CI; Group II: 55.85-82.85 CI; p=0.039. Statistically significant differences were observed between the two groups at the end of the study on the global scale: Group I had 49.36-63.88 CI and group II had 33.05-51.88 CI; p=0.016.
Conclusions: The adminsitration of ice cream would partly cover the social aspect of food, improve QLQ in malnourished cancer patients.These results deserve futher studies of confirmation

1111 poster

INCIDENCE OF RADIO-DERMATITIS IN HEAD AND NECK CANCER WITH 3D CONFORMAL RADIOTHERAPY AND PROPHYLAXIS WITH TOPIC CREAM

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Purpose: Radio-induced dermatitis is one of the most frequent side effects of radiotherapy, its estimated that between 80-90% of irradiated patients experience some degree of dermatitis. In head and neck cancer is the second most important toxicity behind mucositis, but there are not standardized guidelines for its prevention with topic cream and the effect of new planning techniques, and treatment.We evaluate the effectiveness of 3D conformal radiotherapy and topic use of a lotion containing 3% urea, polidocanol and hyaluronic acid for preventing the occurrence of acute radio dermatitis and evaluate its severity comparing with historical series treated with 2D technical for head and neck cancer.
Materials: Prospective observational study in 112 patients with head and neck cancer with 12-week follow up period in 2009. Skin toxicity RTOG was evaluated weekly. We compared incidence and grade of toxicity with 300 head and neck cancer patients treated with 3D conformal radiotherapy in our centre during 2007-2008, and 150 patiens treated during 1998, with 2D technical, both with skin support measures.
Results: The proportion of patients who didnt develop radiodermatitis was significantly higher in the lotion urea use group (24.2% vs 13.8% vs 2.3% ; p<0.05). The lotion urea use showed lower incidence of radiodermatitis (70.2% vs 83.7% vs 97.6%) and lower grade of toxicty (p<0.05) and lower proportion of radiodermatitis grade 2 or higher (23.4% vs 51.3% vs 62.7%)
Conclusions: The use of urea 3% hydrating lotion during treatment and beginning three weeks before start radiotherapy, is an effective agents for the prevention of radiodermatitis in head and neck cancer patients, reducing the incidence of skin toxicity and lower incidence of radiodermatitis grade 2 o higher.

1112 poster

MEASURMENT AND EVOLUTION OF VAS FOLLOWING RADIOTHERAPY FOR PALLIATION OF PAINFUL BONE METASTASES

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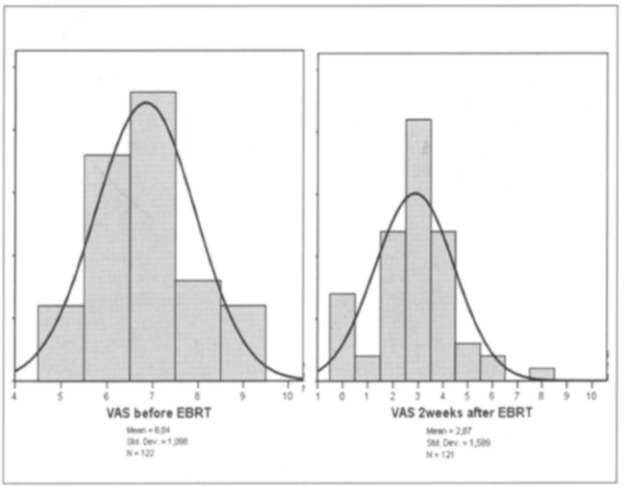
Purpose: To evaluate and assess the pattern of pain scores during and immediately after radiotherapy and to determine a meaningful change in visual analogue scale (VAS)in the palliation of painful bone metastases.
Materials: In a retrospective study, we analyzed clinical records of 122 patients with painful bone metastases, who were referred to be treated with external beam radiotherapy between January and June 2008. The most common dose fractionationwas 30Gy in 10 fractions prescribed to 112 patients (91.8%).The rest of the patients (8.2%) recieved a different dose fractionation. The pain response was assessed on VAS prior to and following radiotherapy at last day of treatment and finally 2 weeks latter.Statistical analysis was carried out with SPSS 12.0
Results: The average age was 68.2 years. There were 70,5% male and 29,5% female patients. The primary cancer site were: Lung (29%); Prostate (23%); Breast (13%); Gastrointestinal (9%); Bladder (6,6%); H&N (5%); Kidney (3,3%); Liver (3,3%) and others (7,8%).The locations most commonly treated were thoracal and/or lumbar spine (41%); pelvis and/or sacrum (32,8%); clavicle and/or humerus and/or scapula (9,8); femur (8,2%); rib and/or sternum (8,2%). The median VAS before treatment for all patients was 7/10 (range 59). The rib and/or sternum were the less painful locations VAS 6/10. A degree of pain relief, was achieved in 98 % of the patients after the treatments. The VAS decrease in 58% and the median VAS two weeks after the EBRT was 3/10. There was complete relief VAS 0/10 in 11% of the patients. Treatment was well tolerated by patients, some acute toxicity was observed in 6%.



Conclusions: It is concluded that VAS is an usseful tool to asses the effectiveness of EBRT in the palliation of painful bone metastases and the influence on the patients quality of life.The finding in the meaningful change in pain scores helps the investigator to define the kind of response used in some clinical trials.

1113 poster

PALLIATIVE RADIOTHERAPY EVOLUTION IN THE LAST 20 YEARS AT THE INSTITUT D'ONCOLOGIA RADIOTERÀPICA, PARC DE SALUT MAR.

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Purpose: The aim of this study is to evaluate the radiotherapy scheme most widely used in palliative treatment at the Institut d'Oncologia Radioterca in Hospital de l'Esperannd its evolution over time.
Materials: We analyzed clinical administrative database from 1990 to 2009, excluding the years 1997 and 1998 by changing the treatment unit; we separately analyzed the treatments used before and after the change. Between 1990 and 1997 we had a treatment unit and 3 staff , in the second period 2 units and 6 staff. The data are identified from the system information consisting in the treatment goal, date of irradiation, number of fractions and the total dose.
Results: From 1990 to 2009 have been performed 3042 palliative treatments, 1893 were men and 1149 women. The mean age was 64.7 $\pm$ 12.02 years (19-100). The most frequent primary tumor was lung cancer (34.58%) followed by breast (19.43%), prostate (19.40%) and gastrointestinal tumors (12.69%). Bone metastases account for 78.14% of treatments followed by the CNS with 10.98%. The percentage of palliative treatments performed before 1997 and after 1999 was 18,64% and 13,22% respectively. The treatment schemes in bone metastases and brain of the first and second period studied are presented in Table 1

Bone metastases n= 2377	1990-96 n=651	1999-09 n=1726	Brain metastases n=333	1990-96 n=80	99-2009 n=253
Schedule	%	%	Schedule	%	%
1 fraction	**46.85**	**49.25**	1 fraction	-	-
3 fractions	23.20	2.20	3 fractions	8.75	1.19
5 fractions	6.91	**30.42**	5 fractions	36.25	**69.96**
10 fractions	19.20	16.34	10 fractions	**48.75**	20.55
Other	3.84	1.80	Other	6.25	8.30

Conclusions: In the two periods studied, the most used fractionation in bone metastases is 8 Gy in a single fraction. In the second period we observed an increase of 5 fractions and a upkeep of the pattern of 10 sessions. Regarding the treatment of brain metastases most widely used scheme in the first period was 30 Gy in 10 fractions and currently the most common dose is 20 Gy in 5 fractions. Changes on the treatment units and staff growth have not influenced the use of a single dose in bone metastases.

1114 poster

PALLIATIVE ROLE OF RADIOTHERAPY IN PATIENTS WITH SYMPTOMATIC PELVIC RECURRENCE OF METASTATIC COLORECTAL CANER

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Purpose: To evaluate the effectiveness of palliative radiotherapy (RT) in patients with symptomatic pelvic recurrence of metastatic colorectal cancer.
Materials: From August 1995 to December 2007, 80 patients with symptomatic pelvic recurrence of metastatic colorectal cancer were treated with palliative RT at Samsung Medical Center. Initial presenting symptoms were pain (68 cases), bleeding (18 cases) and obstruction (9 cases). Fifty-eight patients (73%) had pelvic mass originated from rectal cancer and 22 patients (27%) from colon cancer. Total RT dose was median 36 Gy (8-60Gy) with 1.8-8 Gy per fraction.When α/β for tumor is assumed to be 10 Gy for biologically equivalent dose (BED), the median RT dose was 46.8 Gy10 (14.4~78). All patients received two-dimensional or three-dimensional conformal RT with megavoltage photon. Twenty-two patients (27%) were treated with concurrent chemoradiotherpay (CCRT). Symptom palliation was accessed at 1 month after the end of RT.
Results: Symptom palliation was achieved in 80% of the patients. During the median follow-up period of 5 months (1-41 months), 45% of the patients experienced reappearance of symptom, that median symptom control duration was 5 months (1-41 months). Median survival after RT was 6 months (1-44 months). On univariate analysis, significant prognostic factor for symptom control duration was BED more than 40 Gy10 ($p< 0.05$) and CCRT was marginally significant factor ($p=0.0644$). On multivariate analysis, BED was significant prognostic factor for symptom control duration ($p< 0.05$).
Conclusions: Radiation therapy was effective palliation method in patients with symptomatic pelvic recurrence of metastatic colorectal cancer. For patients with adequate performance status, higher BED and/or CCRT might be considered for longer symptom control duration.

1115 poster

PALLIATIVE WHOLE BRAIN RADIOTHERAPY FOR BRAIN METASTASES: A RE-AUDIT OF PATIENT SELECTION AND SURVIVAL MEASURING THE EFFECT OF A CHANGE IN PRACTICE AT A UK CENTRE.

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Purpose: The Radiation Therapy Oncology Group (RTOG) recursive partitioning analysis (RPA) classifies patients with brain metastases into 3 prognostic groups. Patients with the best prognosis (RPA I, median survival 7.1 months) are < 65 years old, with a karnofsky performance status (KPS) $\geq$ 70, no extracranial metastases and controlled primary disease. Patients with a poor performance status (KPS < 70) have the poorest prognosis (RPA III, median survival 2.3 months). All other patients are RPA II (median survival 4.2 months). An audit carried out at our UK centre in 2005 demonstrated a short median survival following radiotherapy for brain metastases of 54 days (6 month survival 10.9%), and patients with poor prognostic factors were more likely to receive the shortest regimen (12 Gy in 2 fractions). This radiotherapy centre no longer uses 12 Gy in 2 fractions, and patients with a poor prognosis who are not suitable for a longer fractionation are not offered radiotherapy. The aim of this re-audit is to examine the effect of this change in practice on patient selection and survival after WBRT.
Materials: Data was collected retrospectively from medical case-notes, GP records and the cancer registry on all patients who had undergone whole brain radiotherapy (WBRT) at a single centre during September and October 2008.
Results: 37 patients were treated with WBRT for brain metastases. The most common primary sites were Lung (15) and breast (10). The median age was 65 years (40-82 years) with 19 (51%) patients 65 or over. Extracranial metastases were present in 28 (76%) patients. PS was only recorded in 13 patients: 8 had a KPS < 70. The following dose/fractionation regimens were used: 27.5-30 Gy in 8-10 fractions (14), 20 Gy in 4-5 fractions (23). No patients received 12Gy in 2 fractions. Median survival was 83 days (2.7 months) with a 6 month survival of 30.3%. Of the patients with a documented KPS, four were RPA I (median survival 212 days (7.0 months)) and seven were RPA III (median survival 43 days (1.4 months)).
Conclusions: Survival following WBRT for patients with brain metastases in this institution has improved. This study demonstrates the importance of considering the RPA when selecting patients for WBRT. We believe the cessation of the 12Gy in 2 fraction regimen has improved patient selection although performance status continues to be poorly documented. For patients with non-small-cell lung cancer and brain metastasis whose benefit from WBRT is uncertain, this institution is actively recruiting to the NCRN QUARTZ trial (NCT00403065), randomising to WBRT and steroids versus steroids alone. Future similar studies in other cancer sites should be considered to further our understanding of the role of palliative WBRT in patients with brain metastasis.

1116 poster

PATTERN OF PRACTICE FOR PALLIATIVE TREATMENT OF GLIOBLASTOMA (GBM): A SURVEY PROMOTED BY THE ITALIAN ASSOCIATION OF RADIATION ONCOLOGY (AIRO)

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Purpose: To retrospectively analyze the pattern of practice for palliative treatment of poor-prognosis GBM patients in Italy between 1st January 2004 and 31st December 2005.
Materials: An experienced radiation oncologist (M.L.) belonging to the "Palliative treatment and supportive care research group" and "Central nervous system research group" of AIRO developed a questionnaire represented by 12 questions. The Research Groups subsequently approved the final version. Each Italian radiotherapy centre was asked to analyze their database and to

fill the questionnaire.
Results: Thirty-three out of 132 (25%) questionnaires were returned for a total of 1070 patient datasets. Palliative radiotherapy was delivered in 249 (23%) patients while 78 (7%) cases received supportive care only. Concerning irradiated patients: GBM was pathologically confirmed in 77% of cases. Biopsy was performed as the only surgical procedure in 37% of patients. Post-surgical performance status and age at diagnosis were the 1st and the 2nd decisional criteria to choose the palliative treatment, respectively. Only hypofractionated regimens were used; dose per fraction ranged between 2.5 and 5 Gy while total dose varied between 20 and 45 Gy. Thirty Gy in 10 daily fractions was the most used scheme (45% of cases). Sixty-seven percent of patients received "partial brain irradiation and "two opposed lateral beams" represented the main field arrangement (66% of cases). Chemotherapy (mostly temozolomide) was administered concomitantly to (24%) and after radiotherapy (40% of cases). Twenty-one out of 33 (64%) centres followed the patients after treatment and "intensive follow-up" (clinical examination, CT and/or MRI) was used in 65% of cases. However, quality of life was evaluated merely by 9% of the centres. Only twenty-nine patients (12%) were enrolled in clinical trials.
Conclusions: The recovered data highlighted marked variations concerning the palliative treatment of poor-prognosis GBM. However, according to the literature the use of tolerable and effective short-course radiation regimens was widespread even if not standardized. Some areas for improvement emerged: the enrolment in clinical trial, the exact role of chemotherapy administration in this subset of patients, and the quality of life evaluation. Despite a very low rate of centres adhering to the survey, this approach provided an adequate method of discovering areas of convergence and divergence in clinical practice on a national basis.

1117 poster

PITASOR STUDY: PREVALENCE, INCIDENCE AND TREATMENT OF ANEMIA IN RADIATION ONCOLOGY DEPARTMENTS IN SPAIN.

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Purpose: Anemia is the most common haematological complication in cancer patients. Analysis of the incidence, prevalence and treatment of anemia in oncologic patients treated in Radiation Oncology Departments in Spain (ROD).
Materials: Observational, prospective, multicenter study which involved 19 Spanish ROD. The study was approved by the CEIC Central Defense Hospital. 477 patients with solid tumors, subsidiary of RT with radical intent referred to such centers within a period of one month and gave their consent to participate in the study. We gathered the main characteristics of patients and their oncologic disease. All patients underwent a determination of Hb levels before, during and at the end of RT. In patients with anemia we assessed the existence of related symptoms and its treatment.
Results: Basal situation: The prevalence of anemia was 34.8%. Mean Hb in patients with anemia was 11,17 g/ml. Anemia-related symptoms were present in 34% of the patients. Anemia predisposing factors were: stage of the disease, previously received chemotherapy, and hormonal therapy. 39% received anemia treatment, with a mean Hb of 10,43 g/ml. During RT: The prevalence of anemia was 38.9% with a mean Hb of 11,24 g/ml. Predisposing factors for anemia during RT treatment were: age, male sex, chemotherapy prior to RT, basal anemia and chemotherapy during RT. 36.3% had anemia-related symptoms. 34.6% with a mean Hb of 10,5 g/ml received treatment for anemia. The prevalence of anemia at the end of the RT was 38.1 % with a mean Hb of 11,19 g/ml. The predisposing factors for the appearance of anemia at the end of RT were: male sex, anemia at basal situation and during treatment and chemotherapy during RT. 34% had anemia-related symptoms and 41.2 % with a mean Hb of 10,5g/ml received treatment for anemia. The presence of anemia-related symptoms was significantly correlated with the beginning of treatment for anemia. The incidence of anemia (new cases) during radiotherapy was 17.5 %.
Conclusions: The prevalence of anemia in basal situation, during RT and at the of RT is 34,8%, 38,9% y 38,1%. During RT the incidence of anemia is 17.5%. 39,8%-41,2% of patients with anemia and 64,2%-68% of patients with anemia-related symptoms received treatment. Treatment of anemia starts with Hb<11 g/dl and the goal is to achieve Hb 12 g/dl. In our Radiotherapy Oncology Departments, the treatment of anemia complies with the current recommendations and guidelines in use.

1118 poster

PROPHYLAXIS OF OROPHARYNGEAL MUCOSITIS IN COMBINED RADIOIMMUNOCHEMOTHERAPY IN HEAD & NECK CANCER

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Purpose: Our experience with the treatment of head & neck cancer under concomitant radio- and immunochemotherapy especially under cetuximab showed that nearly all patients display strong mucositic adverse reactions (grade 3/4) additional to other side effects. In severe cases the oropharyngeal mucositis leads to a therapy interruption or even to a discontinuation caused by secondary local or systemic infections. Mucositis associated pain symptoms also limit the QoL significantly. To prevent or reduce the mucositis and its side effects we treated 148 patients till now next to our standard antimycotics/ panthenol solution additionally with a polyvinylpyrrolidone (PVP) and sodium hyaluronate containing oral gel (Gelclair). The patient collective contained an unselected group of diverse tumor stages, health status and comorbidities.
Materials: 148 patients received the oral gel as a mouth rinsing solution (15 ml) four times daily ten minutes after antimycotics (1 ml containing 100 mg amphotericin B) and panthenol-solution (10 ml containing 500 mg Dexpanthenol). The treatment started simultaneously with radiotherapy and was discontinued four weeks after the end of the radiotherapy.
Results: In consequence 129 patients were evaluable. Under this treatment we observed in 106 patients only mild cases of oropharyngeal mucositis. In 17 patients we observed a grade III mucositis and in 6 patients a grade IV mucositis. There were no specific side effects of the oral gel observed and all patients were mostly compliant. In 16 cases therapy had to be interrupted because of a mucositis (grade III/ IV). 13 patients had therapy interruptions or discontinuation for other reasons.
Conclusions: It seems that a prophylactic treatment of head & neck cancer patients receiving a combined radioimmunochemotherapy with a polyvinylpyrrolidone (PVP) and sodium hyaluronate containing oral gel additionally to antimycotics / panthenol seems to effectively reduce most observed mucositis and leads to an improved patient compliance and increases their QoL. Rates of infections and pain symptoms decreased significantly.

1119 poster

PROSPECTIVE STUDY: TOXICITY AND QUALITY OF LIFE IN LOCALIZED PROSTATE CANCER TREATED WITH RADIOTHERAPY.

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Purpose: Analysis of the toxicity and impact in the quality of life of radiotherapy treatment with curative intent in patients with localized prostate cancer (LPC).
Materials: Prospective study carried out in one hospital, approved by CEIC, in LPC treated with External Beam RT (EBRT) or Brachytherapy (BT). For assessment of the quality of life the following questionnaires have been used: IPSS, IIEF and EORTC QlQ-c30. For toxicity evaluation questionnaire CT-CAE v3.0 has been used before treatment, at the end of treatment (immediately with EBRT and a month after BT) and during three-monthly follow-ups with a projected monitoring of two years. We present the preliminary results in 38 patients (28 with EBRT and 10 with BT) in which we have both baseline and end of treatment questionnaires. Mean age 68.29±7. Risk categories: Low Risk 14 patients, Intermediate 18 and High 6. Concurrent hormonal therapy in 8 patients. The statistical analysis has been carried out with SPSS, considering statistically significant differences with $p<0.05$
Results: No statistically significant differences have been found using CT-CAE (intestinal and genitourinary toxicity and sexual function), IIEF and QlQ-c30 questionnaires. IPSS score worsens significantly: baseline score of 12.5±7.9 vs 18.13±13 after treatment ($p<0.001$). EBRT and the abscense of hormonal therapy are factors in urinary disfunction, which is not dose-related.
Conclusions: In patients with LPC treated with radiotherapy the IPSS score is worsened in a statistically significant way. Our current sample size does not allow us to identify predictive factors.

1120 poster

PROTOCOL IN PATIENTS (PTS) TREATED FOR PAIN IN BONE METASTASIS (MTS): IS THERE A ROLE FOR ORAL TRANSMUCOSAL FENTANYL CITRATE(OTFC)?

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Purpose: This study evaluated the efficacy and safety of using OFTC in the radiotherapy treatment of mts bone for positioning during simulation and treatment.
Materials: 10 pts with bone mts were enrolled (4 males and 6 females; median age 73 years; age range, 5172 years) from August 2009 to March 2010. All patients received 3D-CRT technique to a total dose of 30 Gy in conventional fractionation (3Gy/die). All pts were valuated with a visual analogue scale (VAS) before RT simulation. 4 pts had a VAS > 6 and 4 VAS>8 at the enrollment. Everyone pts used steroidal anti-inflammatory drugs and 4 pts used opioids. The OFTC was used to allow us the positioning of the pts in simulation and during treatment. Treatment with OFTC resulted very important to reproducibility of therapy and avoiding interruption treatment. 6 pts were na in opioids therapy recive lower doses (200 mcg of OTFC), four pts who using daily opioids received 20% upper dose opioids equivalent of OFTC.
: In the overall efficacy evaluation we saw the pain-alleviating effect, the easy, of application and the lack of acute side effects, OFCT use were as good in each pts examinated for positioning during simulation and treatment. Two pts na in oppiods needed an increasing dose to 400 mcg during RT.
Conclusions: Our data provide the evidence OFTC is effective and relatively easy to use for positioning during simulation and treatment of pain in pts treated for mts pain. This protocol in our data seem to be optimum in some selected patient impossible to positioning for mts pain during simulation and treatment

1121 poster

SCREENING AND PREDICTING MALNUTRITION IN LUNG CANCER PATIENTS: DEVELOPING NEW TOOLS.

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Purpose: The assessment and management of nutritional problems are crucial to support patients undergoing radiotherapy. Poor nutritional status may occur as a result of pre-existing problems, the age, the cancer itself or the side effects of treatment. Weight loss, anorexia and cachexia affect many patients with cancer of the lung, head and neck or gastro-intestinal tract. The altered nutritional status affects patients and families physically, psychologically and socially. Malnutrition impairs also the outcome of the disease with increased morbidity, mortality, hospital stay and healthcare cost. This prospective study aimed at developing a simple and easy tool to assess the risk of malnutrition after radiotherapy.
Materials: 47 lung cancer patients treated with curative intent were recruited and evaluated before radiotherapy and 4 months after completion of the treatment. The evaluation was performed using 59 questions. The first part of the questionnaire investigated social support, recent weight loss, the current disease and their relation to nutritional needs, metabolic stress, physical evaluation, the treatment and the patient's functional capacity. The second part of the questionnaire dealt with the patient's age, his/her symptoms, functional capacity and smoking habits. Malnutrition status was defined using Thoresen's criteria. The validity of the new screening tool was based on the comparison of anthropometric, biological and nutritional variables between patients classified as being at risk of malnutrition or not.
Results: Using multivariate stepwise regression, body mass index (BMI) and weight loss over the last 6 months were identified as criteria for malnutrition. The score of malnutrition was computed according to the following equation: S = 5.88 - 0.2 BMI + 0.05 WL where WL is the patient's weight loss over the last 6 months expressed in percent of the initial weight and S is the malnutrition score with a threshold value of 1.8. Low BMI, age (> 70 years) and presence of oedema were identified as risk factors for malnutrition during radiotherapy. The risk for malnutrition during radiotherapy is given by the equation: R = 3.67 + 0.98 A 0.12 BMI + 1.2 OE where A is the age > 70 years, OE is the presence of oedema and R the risk with a threshold value of 1.2.
Conclusions: Two simple tools were determined with the capacities (1) to detect malnutrition in lung cancer patients scheduled for radiotherapy and (2) to assess the risk for these patients to develop malnutrition after treatment. Further studies are needed to validate these tools in larger samples, in other cancer patient's populations and for other time points.

1122 poster

THE YOUNG A.I.R.O. "INTER-ROMA PROJECT": INTERVIEW FOR RADIATION ONCOLOGISTS ON METASTASIS APPROACH

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Purpose: Aim of this survey has been to define physician choices of fractionation schedule in 4 different real clinical cases of metastatic patients to bone metastases.
Materials: During last A.I.R.O. national meeting, 4 different real clinical cases were presented to attending radiation oncologists. Clinical cases were different for histology of primary tumor, Performance Status (PS), pain before (VASi) and after analgesics (VASa), site and radiological aspect of metastatic lesions.For each clinical case, radiation oncologists were asked to: - give indication to treatment, - prescribe doses, volumes and treatment fields arrangement, - tell if a prophylactic supportive therapy should be prescribed (multiple choices allowed between antierythema, antiacid, antivomiting, corticoids, other supportive therapy, any supportive therapy) - give informations about reasons that particularly influenced prescription (multiple choises allowed between PS, disease extent, initial VAS, response of VAS to analgesics, metastases site, age, patient prognosis, radiological aspect of the lesions, expected RT Toxicity, personal habits, patient confort, waiting list of your centre, economic aspects.
Results: Three hundred questionnaires were given to radiation oncologists attending the A.I.R.O. national congress, 125 questionnaires were completed but only 122 were adequately completed and considered for this analysis. Table 1 resumes principal results for every clinical case.

Clinical case	Do you treat patient? (yes, %)	Principal criteria (%)	Preferred dose schedule (total dose Gy/fractions, %)	Preferred volume schedule (volume, %)	Supportive therapy (at least 1/ at least 2, %)
#1: breast, PS 0, VASi 7 and VASa 5. D9-D10, osteolytic and ostoblastic lesions	89.3	Age (55.7)	30/10 (65.5)	D8-D11 (34.3)	28.7/39.3
#2: lung, PS 1, VASi 8 and VASa 3, L2-L3, osteolytic lesions	87.6	Prognosis (58.5)	20/5 (44.6)	L1-L4 (50.4)	26.4/20.7
#3: prostate, PS 0, VASi and VASa 0, case #3: ostoblastic right femoral lesion	61.8	PS (34.8), but see note*	30/10 (47.8)	GTV + margins (60.9)	15.4/0
#4: lung, PS 2, VASi 9 and VASa 4, critical ostolytic lesion of C3 + D5-D6 osteolytic lesions + D10 osteolytic lesion with spinal compression	95.8	Radiological aspect of lesions (67.5)	8/1 (32.2)	Critical lesion + spinal compression + symptomatic lesion (37.6)	35/46.7**

* 38.2% of radiation oncologists declared not to treat patient because of VASi and VASa = 0.
** 65% prescribed corticoids

Conclusions: Important differences between radiation oncologists in deciding treatment doses and volumes for bone metastases were seen. The role of supportive care should be better defined. National and international guidelines are needed in order to uniformly treat these patients and obtain better data for an evidence based decision making process of radiation oncologists.

1123 poster

TREATMENT OF REFRACTORY RADIATION-INDUCED HEMORRHAGIC PROCTITIS WITH OZONE THERAPY.

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Purpose: To evaluate the efficacy of ozone therapy (O3T) in treatment of severe and/or refractory radiation-induced hemorrhagic proctitis.
Materials: Between April-2004 and June 2009, 17 patients (12 male, 5 female) with median age 69 (range, 42-80) were treated with O3T in our centers. O3T was by rectal insuflation in 15 patients and/or by local application of ozonized-oil in 14 patients. Previously: most patients had been treated with medical therapy; 11 patients (65%) underwent 43 endoscopic treatments (argon-plasma-coagulation and/or topical formalin), median 4 (1-10); and 9 patients received 44 blood transfusions, median 4 (1-11). Median time from RT to symptoms: 5 months (0-34) and from symptoms to first O3T: 11 months (1-41). Median time under O3T: 10 months (1-19) and median follow-up after O3T: 40 months (3-56). For radiation-induced toxicity grading we used the National Cancer Institute Common Toxicity Criteria (CTC) grading system (v4.0). Statistical analysis was performed using non parametric tests (Spearman's, McNemar's, Friedman's and Wilcoxon signed-rank tests).
Results:

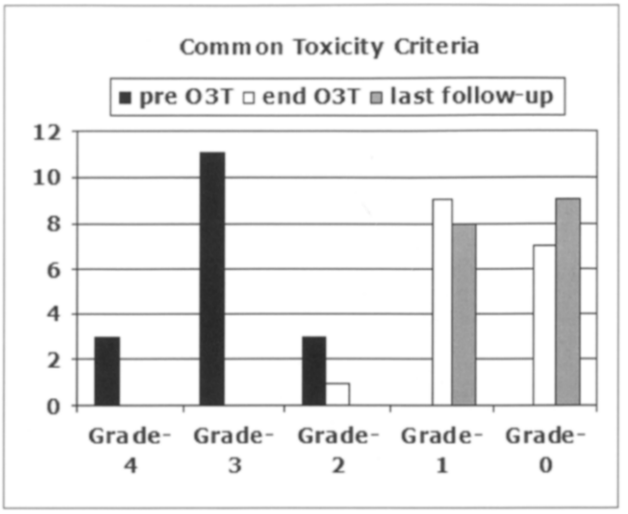
1. O3T was well tolerated and during the follow-up, only one patient with prostate cancer showed metastasis or tumor relapse.

2. CTC-toxicity grade before O3T was correlated with number of blood transfusions before ($p = 0.051$) and during ($p = 0.027$) O3T, as well as with more endoscopic treatments during O3T ($p = 0.034$) and more prolonged O3T ($p = 0.005$).

3. Toxicity pre-O3T was inversely correlated with: time from radiotherapy to rectal-bleeding symptoms ($p = 0.015$) and with the lowest hemoglobin (Hb) level in the patients ($p = 0.026$).

4. Before/after O3T: Median Hb levels were 10.35 (7-14) and 13 (9-15) g/dl ($p < 0.001$), anemic patients were 13 before O3T and 6 after O3T ($p = 0.016$). Endoscopic treatments were 43 before O3T, 17 during O3T and 5 during follow-up ($p = 0.009$). Median CTC-toxicity grade was 3 (2-4) before O3T, 1 (0-2) after O3T ($p < 0.001$) and <1 (0-1) at the last follow-up ($p < 0.001$).

Conclusions: The addition of ozone therapy to the standard treatment is apparently safe and effective in managing severe and/or refractory radiation-induced hemorrhagic proctitis.–Research activity supported, in part, by the I3SNS Program (INT07/030) from the Instituto de Salud Carlos III, Spain. Ozone therapy device and ozonated oil were provided by Dr. Hler GmbH (Iffezheim, Germany)–.



1124 poster

VOLUMETRIC MODULATED ARC THERAPY (VMAT) FOR RE-TREATMENT OF SPINAL METASTASES

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Purpose: to assess the impact of volumetric modulated arc therapy (VMAT) for the re-irradiation of patients with in-field metastatic epidural spinal cord compression (MESCC) relapse in terms of feasibility, acute toxicity, clinical improvement, local control, and survival. All the vertebrae involved were re-irradiated entirely.
Materials: Ten consecutive patients treated between February 2009 and December 2009 were evaluated. The median age was 65 years (range 51-80 years). The primary cancers were NSCLC in 4 patients, multiple myeloma in 1, HCC in 1, chordoma in 1, prostate cancer in 2 and thyroid cancer in 1. The median time of recurrence from previous irradiation was 18 months (range 3-106 months). At the time of re-irradiation 8 patients had other site of metastases. Before treatment, each patient was evaluated by a multidisciplinary team. The treated levels were cervical in 3, thoracic in 6 and lumbar in 1 patient. The clinical target volume (CTV) was defined as the vertebrae with reoccurrence (1-4 vertebrae), keeping out the central spinal cord canal from the target. The planning target volume (PTV) was defined as CTV+5mm in the three directions, excepting the internal portion. A single volumetric modulated arc of 6 MV was optimized according to the RapidArc technique. The dose to PTV was defined in order to have the total biological equivalent dose (BED) to the spinal cord lower than 100 Gy2. Clinical outcome was evaluated by EORTC-RTOG scale for toxicity, visual analog scale (VAS) for pain, Frankel Scale for neurological deficit and magnetic resonance imaging or computed tomography scan. All patients had back pain before treatment (VAS $\geq$7), whereas major or minor preoperative neurological deficit was present in 7 patients.
Results: No significant acute toxicity was recorded. Clinical remission of pain was obtained in 9/10 pts (VAS<2), with median time of 6 months (3-10 months). Improvement of neurological deficit was observed in 6 patients. At the last follow-up (13 months) no local recurrence occurred; median survival was 6 months (range 3-10 months); 5 patients are alive and 5 dead.
Conclusions: In patients with in-field MESCC relapse, re-irradiation is feasible and provides clinical benefit in most patients. In this preliminary communication late toxicities are not evaluated. Further prospective studies are necessary to draw the better re-irradiation treatment in terms of volume of irradiation, total dose and fractionation.

1125 poster

WHOLE BRAIN RADIATION THERAPY FOR ELDERLY PATIENTS WITH BRAIN METASTASIS, IS IT SAFE?

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Purpose: The safety or usefulness of whole brain radiotherapy in elderly patients is not clear. In Japan, life-expectancy is the highest in the world (men, 79.3 yrs; women, 86.1 yrs), and the number of elderly patients is expected to increase in future. The outcome of radiotherapy of elderly patients with brain metastases is not well documented. We retrospectively evaluated our results of whole brain radiotherapy for elderly patients with brain metastases.
Materials: 103 elderly patients aged 6589 years were identified for this retrospective analysis from our original database. The median radiation dose was 32.5Gy. The median performance status by ECOG was 2, and median age was 72 years. The most common primary tumor type was lung (78.6%), followed by colon and rectum (4.9%). Solitary brain metastasis was present in 54.1% of patients. The prognostic factors evaluated for overall survival were: gender, age, performance status, number of lesions, primary tumor site, absence of extracranial disease, recursive partitioning analysis (RPA) class, use of steroid, and radiation doses.
Results: Symptomatic improvement was observed in 58.8% of the cases. Average survival for ages 65 to 69 was 6 months, and 7 months for ages 70 to 74. However, average survival for ages 75 and up was only 2 months. No patients developed severe acute toxicity. Eighty four (81%) patients received prescribed doses without termination or rest longer than 8 days. Patient condition in 19 of the 103 cases required termination of radiation treatment, 9 (47.4%) of whom were over 75 years old. In multivariate analysis, the significant prognostic factors associated with better survival were: solitary brain metastasis (p =0.005) and use of steroid (p=0.005). RPA classification was not a significant prognostic factor (p=0.13).
Conclusions: Most elderly patients with brain metastases have an unfavorable prognosis. Radiation therapy may lead to symptomatic responses in over half of the patients. Whole brain radiotherapy seems to be feasible for elderly patients. As promising results have been published from retrospective radiosurgery and stereotactic radiotherapy series studies for brain metastasis, prospective trials for elderly populations appear warranted in the future.

1126 poster

WHOLE LUNGS IRRADIATION OF THE PATIENTS WITH PULMONARY METASTASES- EFFICACY STUDY BASED ON OBJECTIVE AND SUBJECTIVE DATA

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Purpose: Efficacy evaluation of whole lungs irradiation in patients with multifocal metastatic lung tumors.
Materials: Since 2004 to 2009 year in Centre Oncology-Institute, Branch Gliwice 40 patients (25 men and 15 women) with multifocal metastases to the lungs were treated with whole lungs irradiation. Renal cancer were common localisation of primary tumor in near 50% of patients. Based on CT scans, mean diameter of metastases 0,5 -1 cm were observed in 19 patients and in 21 patients diameter of metastases was greater than 1 cm. Main clinical symptoms: cough and mild/moderate dyspnea was observed in all patients.Conformal radiotherapy were conducted with 6-MV photon beams with conventional fractionation 1,1 Gy per fraction to total dose 11 Gy. Overall treatment time was 12-14 days.
Results: All patients completed treatment protocol without treatment interruption and treatment tolerance was satisfactory.Based on radiological evaluation, complete regression were observed in 35% of patients when lung metastases diameter was below 1 cm.Complete regression rate in tumors with diameter greater than 1 cm was observed in 20% of patients.Based on subjective data, 35% of patients were decreased of clinical symptoms: dyspnea and cough when diameter of metastases were below 1 cm and 52 % of patients for metastases diameter above 1 cm.
Conclusions: Objective evaluation based on CT regression rate of metastases not allowed drawing conclusion that whole lungs irradiation is efficacious method. Decreasing clinical symptoms: dyspnea and cough in near half of patients if tumors were greater than 1cm and good tolerance are important factors for choosing this method.

Clinical/Disease sites : Sarcoma

1127 poster

CARBON ION RADIOTHERAPY FOR LOCALIZED PRIMARY SARCOMA OF THE EXTREMITIES

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Purpose: To determine the effectiveness of carbon ion radiotherapy (CIRT) for localized primary sarcoma of the extremities.
Materials: From April 2000 to February 2010, 17 (male/female: 12/5) patients with localized primary sarcoma of the extremities received CIRT. Age ranged from 14 to 87 years (median 53 years). Ten patients had primary diseases and 7 had recurrent diseases. Of 17 patients, 8 refused amputation, remaining 9 refused surgical resection. Tumors located upper limbs in 4 patients and lower limbs in 13. Histological diagnoses were as follows: malignant fibrous histiocytoma in 4, osteoarcoma in 3, malignant peripheral nerve sheath tumor in 2, synovial sarcoma in 2, and miscellaneous in 6 patients. The CIRT dose to the limb was 52.8 GyE for 1 patient, 64GyE for 4, 70.4GyE for 12 in fixed16 fractions over 4weeks. Records were reviewed and outcomes including radiologic response, local control (progression-free), and survival were analyzed.
Results: The median follow-up was 29 months (range: 9 to 79 months). Radiological response rate was 59% (PR in 10, SD in 6, PD in 1). The local control rate at 5 years were 80%. The overall survival rate at 5 years were 56%. 12 Of 17 patients were alive without disease progression. Four patients had local recurrences, one of 4 patients salvaged by repeated CIRT and the other three were died due to systemic disease. Remaining one patient was died due to leukemia 57 months after CIRT. No toxicity greater than Grade 2 was observed.
Conclusions: CIRT is suggested to be an effective and safe treatment for patients who refused surgery with localized primary sarcoma of the extremities.

1128 poster

DOSIMETRIC COMPARISON BETWEEN INTENSITY MODULATED RADIOTHERAPY AND 3 DIMENSIONAL CONFORMAL RADIOTHERAPY AS POST-OPERATIVE ADJUVANT TREATMENT IN RETROPERITONEAL SARCOMA

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Purpose: To compare the dose distribution in the post-operative adjuvant radiotherapy setting for retroperitoneal sarcoma between 3-dimensional conformal radiotherapy (3DCRT), intensity modulated radiotherapy (IMRT) with 6 coplanar beams (6b-IMRT) and IMRT with 9 coplanar beams (9b-IMRT).
Materials: The technical charts of the last 10 consecutive patients who received adjuvant radiotherapy after complete compartmental resection in our institution were reviewed retrospectively. The Clinical Target Volume (CTV) was delined as the tumor implantation bed in the retroperitoneal space; a 9 millimeter isotropic margin was added to obtain the Planning Target Volume (PTV). A dose of 50.4 Gy in 28 fractions was prescribed to the PTV. Three different treatment plans were generated (3DCRT, 6b-IMRT and 9b-IMRT). The dose delivered to the OAR, including the volume of intestinal cavity (IC) receiving a total dose greater than 20 Gy (V20 IC) or 50 Gy, (V50 IC), the dose delivered within the whole body (volume of body receiving a total dose greater than 47.9 Gy (V47.9body) and 5 Gy (V5body)) and the conformity index (CI, target volume covered by the 95% isodose/total volume of the 95% isodose) were the main parameters compared in the three therapeutic plans.
Results: The mean dose delivered to the IC was not significantly different across the 3 techniques. However, compared to 3DCRT, IMRT reduced the V50 IC by 74% and 76% (p<0.0001) and increased the V20 IC by 30% and 18% (p<0.0178) with 6b-IMRT and 9b-IMRT, respectively.With IMRT, the mean dose delivered to the contra-lateral kidney was 3 fold greater, the V47.9body was divided by a factor of two and the mean dose delivered within the body was lower. The CI were about twice as good with IMRT than with 3DCRT. However, IMRT increased the V5body of 12% and 21% with 6b-IMRT and 9b-IMRT, respectively (p<0.0001). The number of monitor units was higher with IMRT, especially with 9b-IMRT. The number of segments was greater with 9b-IMRT compared with the 6b-IMRT.
Conclusions: Compared to 3DCRT, IMRT greatly reduced the high-dose irradiated volume, however as expected, it also increased the low-dose exposure to OAR. The beams arrangement allowed to optimize IMRT and to reduce low-dose bath and treatment time. Longer follow-up is needed to assess late toxicities of low-dose irradiation, especially for the small bowel, the contra-lateral kidney and the second cancers risk.