Conclusion: IL-2 in combination with polychemotherapy has immunomodulating effect, which considerably affects clinical effectiveness, allowing to decrease the frequency of infectious complications.

8725 POSTER

The safety and efficacy of intrathecal liposomal cytarabine in patients with carcinomatous meningitis from solid tumours

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Background: The purpose was to assess the efficacy and safety of liposomal cytarabine (LC) in the treatment of *de novo* carcinomatous meningitis from solid tumours.
Materials and Methods: From 2005−2008, unselected, sequential patients with solid tumours and de novo leptomeningeal involvement at 3 different Spanish institutions were offered treatment with intrathecal LC, subject to Spanish Ministry of Health approval (n = 16; 9 men, 7 women). None had previously received LC. The diagnosis was confirmed by cytology (n = 13), MRI (n = 10) and/or CT scan (n = 7). The LC treatment regimen was: (induction) 1×50 mg every 14 days (2 doses total), then (consolidation) 1×50 mg every 14 days (3 doses total), then (maintenance) 1×50 mg every 28 days (5 doses total). All patients received concomitant steroids as prophylaxis against arachnoiditis. Three also received concurrent systemic chemotherapy (2 concomitant, 1 sequential). Neurological response was defined as follows: Complete response (CR), improvement of all neurological symptoms; Partial response (PR), improvement of ⩾50% of neurological symptoms for ⩾2 weeks; Stable disease (SD), neurological symptoms unchanged; Progressive disease (PD), neurological symptoms progressed or proliferating. Cytological response (absence of malignant cells in the CSF) was assessed at the time of lumbar puncture for LC in patients who presented with positive cytology, and who received >1 dose of LC.
Results: Patients had a median age of 49 years (range 26−60) and a median follow-up of 42.5 days (range 4−414). All but 1 had undergone previous systemic chemotherapy, and 10 had also received previous radiotherapy. Primary tumours were: breast cancer 7, lung cancer 3, other tumours 6. The median number of LC doses received was 1 (range 1−6). A neurological CR was seen in 5 patients, a PR in 3, SD in 2, and PD in 7. A cytological response was sought in 5 and confirmed in 4, at 14, 19, 28, and 42 days, respectively. Median time to neurological progression or death was 14 days (range 0−170). Adverse effects were reported in 10/16 patients, but none was grade 4. The most frequently reported adverse effect was headache (6/16 patients).
Conclusions: In the largest European case series report to date to evaluate the efficacy and safety of LC in patients with carcinomatous meningitis from solid tumours, LC was generally well tolerated and efficacious. LC reduces the number of IT injections compared to conventional therapy, which should improve quality of life.

8726 POSTER

Clinical pattern of primary central nervous system lymphoma in a developing country

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Primary Central Nervous System (CNS) lymphoma is a rare entity. We wish to present our experience with this rare tumor.
Aim: To study the pattern of presentation and treatment results of Primary CNS Lymphoma from a single Institute in a developing country.
Materialand Methods: Thirty patients with a diagnosis of Primary CNS lymphoma were treated at Regional Cancer Centre, Trivandrum, India during the period 2000−2007. The case records of these patients were studied in detail with respect to their presentation, treatment and survival.
Results: Of the 30 patients, there were 18 males and 12 females. Their age ranged from 26 years to 76 yrs with a median age of 50 years. The main presentation was with features of raised intracranial tension and hemiparesis. The symptoms were present for a median period of 3 months. The pathologic subtype was predominantly Diffuse large B cell NHL in 26 patients, Burkitt lymphoma in 3 cases and diffuse small cell in 1. The main sites of involvement were frontal lobe, parietal lobe, frontopariental, temporal lobe, cerebellum and thalamus. Sixteen patients had undergone decompression. Fifteen patients received chemotherapy, of which 9 received single agent High dose Methotrexate, 5 patients received De Angeles protocol. Radiotherapy was given in 23 patients and the dose ranged from 45−55 Gy. At 2 years 10 patients were alive disease free and the longest survival was 90 months.
Conclusion: Primary CNS lymphoma a rare CNS tumor, is mostly large B cell subtype and requires multimodality management for disease free survival.

8727 POSTER

Outcome after high-dose methotrexate and radiotherapy for primary central nervous system lymphoma

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Background: To evaluate the outcome of patients with primary central nervous system lymphoma (PCNSL) after high-dose methotrexate (HDMTX)-based chemotherapy and radiotherapy (RT) and to identify prognostic factors for survival in this population.
Materials and Methods: Between March 2000 and July 2007, 43 patients with pathologically proven PCNSL received HDMTX based chemotherapy in conjunction with radiotherapy. HDMTX (2.5 g/m^2)-based chemotherapy was given in multiple cycles (median 5 cycle) at before or after RT. All the patients received whole brain irradiation (WBI), followed by boost to tumor bed. As for WBI, 25 patients were treated with reduced dose (median 30.6 Gy; range, 23.4−30.6 Gy) and 18 patients with average dose (median 36 Gy; range, 36−48.8 Gy).
Results: The median age was 55 years (range, 25−75 years) and the patients with poor performance status (PS) of 2 or higher on ECOG scale were 15. At a median follow-up of 26 months (range, 7−146 months), the median progression-free survival was 31 months and the median overall survival (OS) was 59 months. The 2- and 5- years overall survival (OS) was 68.62% ± 0.8% and 42.6% ± 0.9%. The old age (>50 years) and poor performance (ECOG⩾2) were associated with poor OS by univariate and multivariate analysis. There was no difference in survival and intracranial control between reduced and average dose WBI. ($p = 0.7808$ and $p = 0.2458$, respectively). Although marginally significant ($p = 0.0645$), the delayed neurologic toxicity of patients with reduced dose WBI were lesser compared with those with average dose WBI.
Conclusion: Reduced dose WBI could diminish the risk of treatment-related neurotoxicity without compromising survival in patients treated with HD-MTX based chemotherapy for PCNSL. In patients received HDMTX based chemotherapy, appropriate dose of WBI have to be further investigated in prospective trials.

8728 POSTER

The impact of the histology of primary tumor on RPA prognostic classifications in patients (pts) treated for brain metastases (BM) – retrospective analysis of 382 pts treated with hypofractionated whole brain radiotherapy (HWBRT)

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Background: The survival of patients with BM is strongly related to clinical prognostic factors included in the Recursive Partitioning Analysis (RPA) classes. [1] Histology of the primary tumor is not included in the RPA prognostic classes and it is unclear whether it influences survival. The aim of the study was to evaluate the impact of histology on the survival of BM patients among different RPA classes.
Materials and Methods: We performed a retrospective analysis of 382 pts with BM treated at our Institution between January 1995 and April 2008. 31%, 48% and 21% of them were respectively in RPA classes 1, 2 and 3. All were treated with HWBRT, 17% with the addition of surgery and adjuvant HWBRT. Radiotherapy doses were 30 Gy in 204 pts (53%) and 20 Gy in the remaining. The primary tumours were: breast cancer 87 pts (23%), lung adenocarcinoma 143 pts (37%), small cell lung cancer 42 pts (11%), kidney 14 pts (4%), melanoma 20 pts (5%), GE cancer 19 pts (5%), ovary/uterus 8 pts (2%), others 8 pts (2%), unknown 9 pts (2%), classified in broad categories in order to submit to statistical analysis larger groups. Uni- and multivariate analysis were performed.
Results: After a median follow-up of 146 days, the actuarial 1 year overall survival is 24%. Median survival in patients in RPA 1, 2 and 3 is respectively 269, 142 and 64 days (p = 0.0000). At univariate analysis the histology of primary tumor has a significant impact on median overall survival (OS) in each RPA class as shown in the following Table.

	OS (median, days)		
	RPA1	RPA2	RPA3
p	0.0342	0.0002	n.s.
Breast cancer	422	170	70
Lung adenocarcinoma	289	160	39
Small cell lung cancer	248	119	37
Squamous lung cancer; melanoma; GE cancer; others; primary unknown	144	93	56
Kidney; Ovary/Uterus	324	820	78

Multivariate analysis confirms the impact of histology on overall survival along with the other known prognostic factors (RPA classes, dose of HWBRT, combination of surgery and radiotherapy).
Discussion: Histology of the primary is an independent and strong prognostic factor for OS in BM pts treated with HWBRT. More advanced statistical analysis on larger numbers is needed to confirm these results.

References

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8729 POSTER

The effectiveness of radiosensitized tumor treatment in brain metastases of different histogenesis

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Background: The prognosis of the vast majority of patients who develop brain metastases (BM) is poor. The best treatment strategy remains unknown for a large group of patients affected by BM. The aim of this work was to investigate the possibilities of sensitized malignant tumor treatment using some derivatives of hematoporphyrin (HpD) as a radiosensitizer in brain metastases of different histogenesis.
Material and Methods: From 2000 to 2009 the total of 64 patients with BM underwent radiosensitized tumor treatment (RST). There were 35 patients with previously untreated BM, 12 patients with recurrent BM after neurosurgery and 20 patients underwent radiotherapy until RST. The histological examination of primary (42 patients) or secondary (12 patients) tumor revealed: melanoma in 22 cases, adenocarcinoma in 30, adenoid cystic carcinoma in 5, sarcoma in 4, and other tumors in 3 cases. HpD was injected i.v.; 24, 48 and 72h after injection of the sensitizer tumors were irradiated with gamma rays 2 Gy at a time from radioactive ^{60}Co (the full dose of the course was 6 Gy). At the start of the treatment Karnofsky performance scale index was <70% in 59 patients.
Results: As the immediate result of RST, the Karnofsky performance scale index increased in 52 patients after the treatment. All malignant brain tumors fully disappeared in 14 patients. Among these 14 patients there were 5 patients with adenocarcinoma, 2 patients with melanoma, 1 patient with sarcoma, 1 patient with neuroblastoma and 5 (all treated) patients with adenoid cystic carcinoma. CT or MRI examinations, provided 3−6 weeks after each RST course, revealed the partial regression of tumor in 32 patients. The median survival of 64 patients (from the moment of brain metastases detection) treated by the addition of RST was 12 months. Comparing it with the 4.5 months median survival of 184 control group patients, it was statistically significant longer. The median survival of 22 patients with metastatic melanoma was 10 months, and with metastatic adenocarcinoma (30 patients) – 12 months. The median survival of 64 patients from the first course of RST was 7 months.
Conclusions: RST - effective method of treatment in metastatic brain tumors, especially when it is applied for adenoid cystic carcinoma. The tumors of different histogenesis require some RST modifications.

8730 POSTER

Malignant melanoma brain metastases – a single institution experience

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Background: Brain metastases (BM) develop in nearly half of the patients with advanced melanoma representing the cause of death in up to 54%. The limited array of treatment options and the conflicting data on the role of radiation in this group of patients represents a challenging issue in cancer treatment. The purpose of this study was to analyse cerebral involvement of melanoma according to treatment options.
Materials and Methods: The authors reviewed the records and confirmed survival status of all patients with BM from cutaneous melanoma between 1998 and 2004. Cases were grouped according to the treatment received: 1) Supportive Care (SC), 2) Whole Brain Radiotherapy (WBRT), and 3) Surgery+ Whole Brain Radiotherapy (S+WBRT).
Results: Forty-nine patients were identified, all dead as a result of melanoma progression, with median survival from onset of BM metastases of 12 weeks. Stratifying, 51% patients were in the SC group (n = 25), 34% in the WBRT (n = 17) and 14% S+WBRT(n = 7). The median age of diagnosis was similar in the first two groups (60.7 and 62.6 years) but lower in the third group (48.8 years). Karnovsky performance status was only registered in 15 patients (30%). The majority (n = 44) had systemic disease but in 18 SC cases (72%) more than two sites of metastases were found compared to 35% in the WBRT and 40% in S+WBRT. Multiple metastases (>4 lesions) in 16 patients in the SC (64%) and 11 in WBRT (64%). All the patients in S+WBRT had between 1 and 3 lesions. Median survival was 7 weeks in the SC, 16.7 weeks in WBRT and 24,5 weeks in the S+WBRT group. Neurological improvement was seen in 14 SC cases (56%), 15 WBRT (88%) and in all of S+WBRT cases. Thirty nine patients (80%) were on steroids.
Conclusions: Our median survival depended on the treatment modality which in turn seems to be influenced by patient selection, an important bias in this data. Its is extremely difficult to access the palliative benefit of different treatments since the majority of the patients were on steroid therapy.

8731 POSTER

Fractionated Stereotactic Radiotherapy (FSRT) in the management of functioning and non-functioning pituitary adenomas

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Background: FSRT has been developed as more accurate technique of irradiation with more precise tumor localization and delivery and consequently a reduction in the volume of normal tissue. FSRT is not limited by dimensions or distance from CTV to optic system. The objective was to assess the outcome in a cohort of patients with residual or recurrent pituitary adenoma treated with FSRT.
Materials and Methods: Fifty patients (median age 45 years) with a residual or recurrent nonfunctioning (21) or functioning (19) pituitary adenomas were treated between 1997 and 2007. Fifteen patients had an ACTH-secreting, nine GH-secreting and five PRL-secreting pituitary adenoma. Eleven patients had partial or complete hypopituitarism before FSRT. Visual field defect had 10 patients. The treatment was delivered stereotactically, using a Gill-Thomas-Cosman recolocable guide and four noncoplanar arcs with circular focalized collimators with 6. MV LINAC to a dose of 46 Gy in 23 fractions. PTV was defined as GTV+5 mm margin.
Results: At a median follow-up of 68 months (range 14−143), the 5 and 8 years actuarial progression free survival is 98% and 98%, and overall survival is 98%. One patient relapsed 45 months after FSRT. In secreting adenomas hormone levels declined progressively, with hormonal control actuarial at 5 years in ACTH-secreting adenomas in 61%, GH-secreting adenomas in 46% (GH/IGF-1 levels). The hormone levels become normal in one of five, PRL-secreting pituitary adenoma. Hypopituitarism was the most common long-term effect; Pituitary dysfunction was observed, in different grade in patients with normal pituitary function or with partial hypopituitarism, the rates at 5 and 8 years estimated with Kaplan–Meier survival was 27% and 53%. Non visual complications occurred following FSRT.
Conclusions: FSRT as a high-precision technique of localized irradiation achieves tumor and hormone control of pituitary adenomas comparable with previously published date on the efficacy of conventional radiotherapy, the theoretical benefit over conventional radiotherapy in terms of the reduction in long-term morbidity has not yet been demonstrated and requires longer follow-up

8732 POSTER

Ten years' experience with stereotactic radiotherapy for pituitary adenoma

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Purpose: To evaluate local control and toxicity for pituitary adenomas treated with stereotactic radiotherapy (SRT).