planned to repeat every 3 weeks. RT was performed using 4-MV X-ray, and the prescription dose was 46−50 Gy/23−25 fx. (median,50 Gy) Clinical target volume included gross tumour volume and the entire nasal cavity and the ipsilateral paranasal sinus. After treatment, all patients were followed at our hospital.
Result: A complete remission was achieved in 5 patients (83%) at one month after treatment. Both the 5-year overall survival rate and disease-free survival rate were 100%. No severe adverse effect (grade 3?) have been found so far.
Conclusions: The initial results of the present experimental CRT with DeVIC for this aggressive lymphoma was absolutely excellent. This is encouraging and deserves a further study for concurrent CRT with 50 Gy/25fx. and 3 cycles of DeVIC comprised of non-MDR agents and etoposide for nasal NKTCL.

9223 POSTER

Palliative Splenic Irradiation (PSI) in Haematologic Malignancies (HM)

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Background: Splenomegaly is a common complication in HM often associated with hypersplenism, and may cause pain, epigastric discomfort and variable systemic effects due to cytopenias. We retrospectively evaluated PRTS in terms of symptomatic relief in patients with HM.
Patients and Methods: In 1993–2006, 32 patients with HM (median age − 57) received PSI. Twenty one patients (66%) were diagnosed with myeloprolipherative disorder (MPD), 5 patients (16%) had malignant lymphoma (ML), 5 patients (16%) had chronic lymphocytic leukemia (CLL), and 1 patient (3%) had hairy cell leukemia. Splenomegaly was accompanied by pain in 26 patients (81%), anemia in 20 patients (63%), thrombocytopenia in 17 patients (52%) and fever 3 patients (9%). Radiation therapy to entire spleen was delivered by 2 parallel opposed fields using 0.5 daily fractions given 5 days per week up to 6−10 Gy total dose. Survival was analyzed employing Kaplan–Meier method.
Results: PSI resulted in splenic size reduction in 85% of patients, improvement of anemia in 94% of patients and improvement of thrombocytopenia in 69% of patients. The median survival (MS) of pts with MPD, CLL and ML was 45, 10 and 5 months respectively. The MS of pts responders versus non responders was 55 and 16 months respectively (hazard ratio 0.17; p = 0.03; confidence interval 0.035–0.84).
Conclusion: In our hands, low dose PRTS provided effective palliation for patients with HM.

9224 POSTER

Acute Lymphoblastic Leukemia in the Adolescent and Young Adults: a Single Center Experience in Russia

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Background: Adolescents and young adults (AYA) with acute lymphoblastic leukemia (ALL) constitute a distinct population from children and older adults. Based on patterns of referral, they may be treated by either pediatric or adult hematologists. As a group, AYA with ALL have a worse overall survival (OS) and event-free survival (EFS) compared to that achieved by younger children. Original pediatric protocols ALL-MB 91 and 2002 have shown high efficiency of treatment of children in Russia. As a hypothesis we have assumed that outcomes for AYAs treated at adult and pediatric institutions will be equivalent when using therapy based on that used in pediatric cooperative group protocols.
The purpose of the study was to assess the efficacy and toxicity pediatric protocols ALL-MB 91 and 2002 for adolescents and AYA with ALL.
Materials and Methods: Enrollment on the study began in December 1997. Inclusion of patients (pts) in protocol ALL-BFM 90 (n = 43) was completed in September 2005 and ALL-MB 91/2002 − March 2008 (n = 34). In protocols ALL-MB 91/2002 the pts receive four drug induction with dexametasone 6 mg/m^2 daily for 36 days, daunorubicin 45 mg/m^2 for 2 doses, vincristine 2 mg weekly for 5 doses and and intrathecal (IT) cytarabine and IT methotrexate and IT prednisolone weekly for 5 doses. Consolidation therapy included L-asparaginase in a constant dose of 10000 ME/m^2 weekly for 18 doses and 6-merkaptopurine 50 mg/m^2 (100%) daily and methotrexate 30 mg/m^2 (100%) weekly with weekly doses adjusted according to white blood cell count. Central nervous system (CNS) irradiation is performed for pts with CNS involvement at diagnosis and for patients with T-cell ALL and a high presenting white blood cell count. Traditional maintenance was carried out up to 24 months. The protocol ALL-BFM 90 called for the purpose of comparison as an effective standard therapy.
Results: 78 (m − 8, f − 30) pts have been enrolled. 77 pts are valuable (1 withdrew on day 1 of therapy). The median age is 19.3 years (range 15−35). 37 (86%) pts are in complete remission (CR) on the protocol ALL-BFM 90 vs. 29 (88%) pts − ALL-MB 91/2002. Respectively 3 (7%) and 3 (9%) pts died in the induction. 3 (7%) and 1 (3%) pts is refractory to therapy. 5 (12%) and 1 (3%) pts died in CR from significant toxicities. Respectively 9 (21%) and 3 (9%) pts relapsed. 4 (33%) pts have CNS relapse, and 6 (50%) have bone marrow relapse. 6-years event free survival (6 y-EFS) has 54 vs.77% (median of observation 5.7 years, $p > 0.05$), and 6-years overall survival (6 y-OS) has 65 vs. 82% ($p > 0.05$) respectively. Myelosuppression toxicities of ALL-MB 91/2002 protocols have less significant compared with the ALL-BFM 90. In postremission period the most frequent significant toxicities are neutropenia Grade 4 (21 vs. 66%, $p < 0.05$), and thrombocytopenia Grade 4 (0 vs. 62%, $p < 0.05$), and infectious Grade 3−4 (32 vs. 55%, $p > 0.05$).
Conclusions: Protocols ALL-MB 91/2002 is effective therapeutic regimes for ALL. Further studies with higher power are needed to determine if this treatment regimen offers an advantage to AYA patients with ALL.

9225 POSTER

G-CSF Administration in First Line Chemotherapy With ABVD for Hodgkin's Lymphoma in Adults

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Background: Hodgkin's lymphoma is a hematological malignancy originating from B lymphocytes, characterized by the presence of Reed-Sternberg cells amongst other reactive cells. Recent advances in treatment have allowed, even in advanced stages, an overall survival of up to 89% in 5 years. ABVD (doxorubicin, bleomycin, vinblastine and dacarbazine) is the most widely used chemotherapeutic regimen, also associated with significant pulmonary, cardiac and hematologic toxicity. Neutropenia, one of its most common adverse effects, may lead to dose-density alterations, possibly worsening long-term results. Our objective was to verify the role of G-CSF administration in the maintenance of ABVD regimen dose-density, in first-line treatment of Hodgkin Lymphoma in adults.
Material and Methods: We conducted a retrospective cohort of patients who had histologic diagnosis of Hodgkin's lymphoma confirmed by our department of Pathology, from 2004 to 2009 (n = 272). After application of admission criteria, 133 individuals were included. The patients were grouped according to prophylactic administration of G-CSF, which varied consonant different opinions of the doctors that integrated the Service, as there were no guidelines for this intent in use at the time of this Study. Statistical analysis was performed using SPSS version 18.0.2 program (SPSS Inc. ©, 2001, Chicago − IL, www.spss.com).
Results: We analyzed 1311 cycles of chemotherapy, administered for 133 patients, with a median of 12 cycles per patient [1;16]. There was a slight male predominance (n = 67), with a median age of 33 years [16;73] and no significant difference between sexes. Although associated with higher neutrophil counts in subsequent cycles (p = 0.035), administration of G-CSF resulted in no reduction in the frequency of treatment delays (p = 0.510). Overall toxicity was acceptable, with 4 episodes of grade 3−4 adverse events.
Conclusion: Administration of G-CSF didn't affect the dose-density of the ABVD regimen for first line treatment in Hodgkin Lymphoma in the studied patient sample, in spite of altering the neutrophils count. Hodgkin's lymphoma is probably a unique entity in which it is possible to maintain dose-density of chemotherapy without using hematopoietic stimulating factors, even in those patients who have neutropenia at the beginning of each cycle.

9226 POSTER

Alemtuzumab-based Conditioning of Allogenic Stem Cell Transplantation − a Retrospective Analysis of a Single Center

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Background: Alemtuzumab-based conditioning of allogeneic stem cell transplantation (alloSCT) is used to lower the incidence of graft-versus-host disease (GvHD) in selected high risk patients. It is associated with high rate of mixed donor chimerism (MDC) and in some series with increased

relapse rate. We aimed to characterize alemtuzumab-based conditioning alloSCT patients in the Instituto Português de Oncologia do Porto (IPOP) and analyze the relation between MDC and alloSCT outcomes.
Material and Methods: Retrospective analysis of consecutive patients admitted in the IPOP for alemtuzumab-based conditioning alloSCT between 1999 and February 2011. Data on donor chimerism were obtained on months 1, 3, 9 and 12. SPSS®18 was used for statistics. Time to event data were analyzed by Kaplan-Meyer method and compared with log-rank test.
Results: We performed 40 transplants in 38 patients (45% male). Median age was 27 years. Diagnoses were acute myeloid leukemia/myelodisplastic syndrome in 47%, lymphoma in 16% and non-malignant diseases in 28%. Status pre-alloSCT was complete remission in 35%, relapse in 13%, untreated in 35% and graft failure of a previous transplant in 15%; 22% had previous alloSTC. The commonest conditioning regimens were fludarabine-based (76%%). Donor was related sibling in 14. HLA was identical in 16. Stem cell source was peripheral blood in 30 and bone marrow in 8. Immunosuppression was based in a calmoudolin inhibitor in 29. Cytomegalovirus reactivation occurred in 50%. Six patients received donor lymphocyte infusion. Median duration of follow-up was 47 months. Median time to neutrophil and platelet engraftment was 14 and 11 days. Almost 50% had MDC at all-time points; 33% and 20% had acute and chronic GvHD. Median overall survival (OS) was 3.7 years. Estimated OS at 1 and 3 years was 58% and 46%. At the last contact, 10 of the 20 alive patients were in complete remission and 16 had died of transplant-related causes, with 100 days and 1 year transplant-related mortality (TRM) of 19% and 41%. Relapse risk in malignant disorders was at 1 and 5 years 26% and 40%. Presence of MDC was associated with lower acute GvHD risk ($p = 0.47$) but found to be not related to risk of relapse, OS and TRM.
Conclusions: Alemtuzumab-based conditioning regimen wasn't related to relapse risk or OS, so it can be used in selected high risk patients. Our series differs from others in the greater diversity of diseases and conditioning regimens and higher percentage of unrelated donor transplant, non-identical HLA match and previous alloSTC. These characteristics, in association with our limited sample size, can justify the differences in results, particularly the higher TRM.

9227 POSTER

Simulation of Clinical Endpoints (Survival, PFS) in Patients With Refractory Multiple Myeloma Treated With Pomalidomide Based on Interim Week 8 M-protein Response

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Background: The aims of this project were 1) to develop a drug-independent link between tumour burden reduction (as assessed by change from baseline in serum M-Protein) and survival and PFS in multiple myeloma and 2) to simulate expected survival and PFS based on interim M-protein data of an ongoing phase 1/2 trial (CC-4047-MM02, NCT00833833) of pomalidomide (POM) in patients with relapsed and refractory multiple myeloma who have received at least 2 prior therapies including lenalidomide (LEN) and bortezomib. Similar approaches were implemented for solid tumours (Claret, J Clin Oncol 2009; Wang, Clin Pharmacol Ther 2009).
Methods: M-Protein measurements were modeled as a function of time from 704 patients included in two phase 3 clinical studies of LEN plus dexamethasone (DEX) vs. DEX (Dimopoulos, NEJM 2007 and Weber, NEJM 2007). Models for survival and PFS times as a function of model predicted change in end-of-cycle 2 (week 8) M-protein level from baseline and other prognostic factors were developed. Interim M-protein data from the ongoing MM-002 POM study (217 patients) were modeled to simulate clinical endpoints.
Results: Week 8 change in M-Protein ($p < 0.00001$), ECOG performance status ($p < 0.0009$), baseline albumin, hemoglobin and creatinine levels ($p < 0.01$) were significant independent predictors of survival when week 8 change in M-Protein ($p < 0.00001$) and baseline hemoglobin ($p < 0.001$) were significant independent predictors of PFS. Observed survival and PFS distributions over 100 weeks in lenalidomide studies and difference between the two treatments (LEN + DEX vs. DEX) were consistent with the 95% prediction intervals (PI) of the models. Model predictions (95%PIs) of median survival based on week 8 change in M-Protein following treatment with POM and POM + DEX were 78.3 weeks (53.5–116.1 weeks) and 67.8 weeks (45.8–101.3 weeks), respectively when model predicted PFS was 22.5 weeks (14.6–34.3 weeks) vs. 16.5 weeks (9.7–27.7 weeks), respectively.
Conclusions: Modeling and simulation enables the use of the change in M-protein level as a continuous longitudinal biomarker to assess drug effect in multiple myeloma studies. Current simulations indicate encouraging results for POM in a refractory multiple myeloma patient population.

9228 POSTER

Chemotherapy With Artificial Hyperglycemia in Treatment of Recurrent or Refractory Follicular Non-Hodgkin's Lymphomas

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Background: We conducted trial to evaluate the therapeutic efficacy and toxicity of CHOEP regimen under artificial hyperglycemia in patients with relapse or refractory follicular non-Hodgkin's lymphomas. It is stated that under hyperglycemia antitumour effect of chemotherapeutic agents is considerably increased.
Methods: Eligible for this study was 163 patients with recurrent or refractory follicular non-Hodgkin's lymphomas from 2002 to 2007 in our institute. Patients received under hyperglycemia regimen CHOEP. Hyperglycemia is carried out by introduction of 20% solution of glucose in quantity 1200vl. Chemotherapeutic agents dissolved and entered into each bottle of glucose (400 ml); infusion of glucose is spent at the rate of 140–170 drops to a minute. Insulin not entered into glucose solution.
Results: There were 40 CR and 64 PR, for an overall response rate 63.3%. The median time to attainment of CR was after four courses (range, one to six); all CR patients had achieved at last a PR after four courses (median, two). For those whose maximum response was a PR, the median time to PR were two courses (range, one to five). The median duration of CR was 21 months (range, 4 to 25+). The median duration of PR was 9 month (range, 4 to 25+). Among PR patients, 26 developed progressive disease early (within 9 months), 6 within 1 month of discontinuation of CHOEP under hyperglycemia, 13 while on chemotherapy under hyperglycemia, and 7 after early discontinuation of four courses. 23 of these 26 patients with early progression after CHOEP did subsequently stabilize. Three died of progressive lymphoma within 6 months. Only 19 patients did not achieve at least a PR. With a median follow-up duration of 20months, the median survival and failure-free survival times from the time of entry onto the CHOEP+ hyperglycemia study were 34 and 14 months, respectively.
Conclusions: The CHOEP regimen under artificial hyperglycemia achieved a high rate of response in this group of patients with recurrent or relapsed follicular non-Hodgkin's lymphomas. 33% of this 160 patients responded to the CHOEP regimen under artificial hyperglycemia, and there was a CR rate of 25%. Several of the CRs have been durable, lasting up to 2 years. The CHOEP regimen under artificial hyperglycemia was well tolerated.

9229 POSTER

Severe Central Nervous System (CNS) Graft Versus Host Disease (GVHD) in a Patient Without Any Other GvHD Symptoms After Allogeneic Stem Cell Transplantation

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Background: Although graft versus horst disease (GvHD) is the most relevant complication of allogeneic stem cell transplantation (SCT), it rarely affects the central nervous system. Recently, a consensus conference proposed criteria of diagnosis for cerebral GvHD including the obligatory manifestation of chronic GvHD at other organs [Grauer et al., Brain, 133: 2852, 2010]. We observed a 41 y old women, who developed spastic paralysis and fell into coma 2.5 years after having an allogeneic peripheral blood stem cell stem cell transplantation (PBSCT) for acute myeloblastic leukemia from an unrelated HLA 9/10-matched donor. The patient presented with a history of several month of headache supposed to be caused by migraine. She had a history of acute GvHD stage III (skin and intestinal) but no signs of chronic GvHD. In addition she had no history of an independent autoimmunopathy or migraine prior to SCT.
Material and Methods: MRI scan was performed, cerebrospinal fluid was analyzed to exclude CNS relapse and infectious agents, and finally CNS biopsy was obtained by open brain surgery.
Results: MRI scan showed disseminated severe leucencephalopathy without established sign of CNS relapse, lymphoma or typical infection. The cerebrospinal fluid analysis was normal. Toxoplasmosis and viral infection