other chemiotherapy. Although 7/10 pts died after treatment, none of the deaths were related to drug toxicity.
Conclusions: Clofarabine is a well tolerated novel agent in the treatment of pts with multiple relapsed or refractory leukemia, and its activity is not restricted to a specific leukemia subtype. It did not induce the neurotoxicity know from its analogs, and it has been demonstrated to be safe both in single-agent use and in combination with other drugs. Antiemetic therapy is needed to be adjusted in order to avoid the frequent nausea/vomiting side effects.

4119 POSTER

Hypersensitivity reactions and other complications due to L-asparaginase in the treatment of acute lymphoblastic leukemia according to ALL IC 2002 protocol

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Allergic reaction to all forms of L-asparaginase (ASP) is reported in 5−35% pts of various settings. We have analyzed 277 pts with acute lymphoblastic leukemia (ALL) treated according to ALL IC BFM 2002 protocol in the Czech Republic between 2002 and 2007 with the aim to evaluate the frequency, severity and other details of ASP side effects especially hypersensitivity reactions.
All pts received 8×5000 IU/m^2 of ASP in the treatment induction. Those enrolled to standard (SR) or intermediate (IR) risk group were given additional 4×10000 IU/m^2 in late intensification. High risk (HR) pts obtained 2×25000 IU/m^2 in each of 6 cycles of reinduction chemotherapy. E. coli ASP was switched to PEG ASP in case of hypersensitivity reaction, Erwinia ASP or no other ASP form was given to pts who experienced allergic reaction to PEG ASP. All ASP forms were excluded in pts who manifested reaction to Erwinia ASP.
Allergic reaction occurred in 57 pts (20.5%) treated by E. coli ASP, representing 19.8%, 16.8% and 58.9% in SR, IR and HR group respectively. Abdominal pain, nausea, emesis, dyspnoe and skin rush were the most frequent symptoms. Out of 57 hypersensitivity reactions, 35 (61.4%) appeared during the ninth dose of E. coli ASP following 8 weeks interval from preceding exposition. Hypersensitivity to PEG ASP, Erwinia ASP developed 15 pts (26.3%), 2 pts (30%) respectively. Besides hypersensitivity reactions, we documented various other side effects, out of which pancreas dysfunction/acute pancreatitis appeared in 4 (1.4%) pts. Eleven of 277 pts (3.9%) were not given all protocol listed doses of ASP due to related complications.
Hypersensitivity to all forms of ASP occurred in 20−30% pts, the most frequently in HR group which raise the question of treatment efficacy particularly in this group. Pharmacology studies focused on detection of antibodies and silent inactivation of ASP as well as front line use of PEG ASP may help to decrease frequency of allergic reaction and improve its efficacy.
VZ FNM 00064203

4120 POSTER

Childhood cancer pattern: a hospital based cancer registry from a developing country

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Background: More than 80% of world children live in developing countries where adequate medical care is limited. A very few studies have been done in the epidemiology of childhood cancer in the developing countries. Whatever studies have been done in Asia, the incidence of child hood cancer is 3−5% of all cancers. The aim of our study is to see the incidence of childhood cancer and their disease pattern from the hospital based cancer registry.
Material & Methods: During period from January 2002 to December 2008 we analyzed our hospital based Cancer Registry data in Netaji Subhash Chandra Bose Cancer Research Institute, Kolkata a tertiary cancer center in Eastern India. There were total 20568 patients who attended in our institution as Outpatients and Inpatients. Among them 1859 were the childhood age groups (<18 yrs).
Results: In our hospital based cancer registry the patients of childhood age (<18 yrs) group were 9%. The distribution of patient according to the age group (1−5 yrs), (6−10 yrs) and (11−18 yrs) were 365 (19.6%), 901 (48.46%) and 593 (31.89%) respectively. Most frequently childhood cancer were Acute Lymphatic Leukemia 471 (25.33%), Lymphomas 466 (25.06%) (Hodgkin's disease 25%, Non Hodgkin's disease 75%), Round Cell Tumours 279 (15%) (Ewing's Sarcoma 33.33%, Primitive Neuro Endocrine Tumour 26.66%, Rhabdomyosarcoma 22.22%, Neuroblastoma 12.44%), Brain Tumour 183 (9.86%) (Meduloblastoma 91.21%, Astrocytoma 8.78%), Wilm's Tumour 967 (5.2%), Acute Myeloid Leukemia 82 (4.4%), Germ Cell Tumour 77 (4.13%), Osteosarcoma 68 (3.66%), Chronic Myeloid Leukemia 52 (2.8 %), Retinoblastoma 36 (1.93%), Soft tissue sarcomas and other malignancies 48 (2.58%).
Conclusion: The incidence of paediatric cancer in our study was higher as compared to other studies. Children in Indian subcontinent showed a different pattern of cancers with excess of Lymphomas (especially Hodgkin's Lymphoma) and Round cell tumours as compared to those reported in Western Literature.

4121 POSTER

DNA ploidy and proliferative activity in common round cell tumors in children and their value as prognostic indicators

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Background and Aim: Traditional clinico-pathologic criteria are often inadequate to accurately identify, children with small round cell tumors who will have poor response to therapy. Abnormal cellular DNA content (aneuploidy), has been linked to the rate of cell proliferation, and ultimately to prognosis. Flowcytometry (FCM), is a relatively rapid and precise technique, allowing quantitative detection of DNA content and measurement of S phase fraction (SPF), which can be used to classify cases into prognostically different subgroups. This may help in choosing the suitable chemotherapeutic regimens.
The aim of this study, was to evaluate the ploidy status and cells in SPF of common round cell tumors of Egyptian children, using FCM, correlating these parameters with the clinical and biological features and showing their effect on treatment and survival.
Material and Methods: The study included 50 children with round cell tumors, presenting to the National Cancer Institute (NCI), Cairo University. Only patients with complete follow up, full data were included in the study. Patients in each tumor type received the same treatment, and response to treatment was assessed according to the World Health Organization (WHO) criteria. Survival was calculated from the first day of diagnosis until the last date of follow up or death. Nuclear suspension was prepared for each sample, stained with propidium iodide. Measurements were performed using a FACScan flow cytometer and 10.000 cells were acquired for each sample. Results presented as frequency distribution histograms.
Results: In 20 neuroblastoma cases, DNA ploidy and index correlated significantly with progression free survival (PFS) and overall survival (OS). Diploid tumors fare worse than aneuploid ones. Response to treatment significantly correlated to ploidy ($p = 0.019$) and status of patient ($p = 0.006$). SPF correlated significantly to ploidy ($p = 0.03$) and to DNA index. In 15 rhabdomyosarcoma cases, only ploidy significantly correlated with PFS and to OS. DNA index significantly correlated with OS. In 15 Non Hodgkin's lymphoma (NHL) cases, only SPF correlated significantly to PFS.
Conclusion: DNA analysis by FCM is a valuable prognostic factor of great benefit in treatment of neuroblastoma, and can be used to confirm biological entity of tumors. Ploidy is prognostic in rhabdomyosarcoma, identifying high risk patients for treatment failure even with favourable standard criteria. In NHL, SPF may be a useful prognostic marker, only to response to treatment but not to survival.

4122 POSTER

The effect of self care on quality of life of children with acutelymphocytic leukemia

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Introduction: Acute Lymphocytic Leukemia (ALL) is the most common childhood cancer that with current treatment 80% of children survive more than 5 years. But treatment is long term, painful and invasive, So prevention of adverse effects and their effects on Quality Of Life (QOL) is an important problem that confirm need of self care. The purpose of this study was to determine the effect of self care on QOL of children with ALL in Medical centers of Isfahan in 2008.

Materials and Methods: This study is a clinical trial with two groups and twostages.48 children with ALL, age between 5 to 18, was selected by longitudinal case registry and randomly divided to experimental (n = 24) and control (n = 24) groups. Pediatric QOL Inventory general scale and cancer Modula was used for measuring children QOL. Validity and reliability of inventory was determined from Content validity and Cronbach's alpha coefficient. Educational program was similar in two groups. The experimental group given self care checklists after educational sessions and followed for 3 months. QOL inventory was completed before and after self care in both groups. In order to access the result SPS Software, t student test, $\alpha 2$ test and paired t test were used.
Results: The finding showed that two group were same concerning the effective factors on the QOL, such as age, sex, etc ($p > 0.05$). There was no significant difference between QOL mean score of both groups before the intervention (self care). There was a significant difference in totalinventory ($p = 0.05$) and cancer Modula inventory ($p = 0.046$) in experimental group before and after the self care but there was no significant difference in control group. Mean changes of QOL of both groups before and after self care was significantly difference.
Conclusion: QOL after self care was improved in experimental group while QOL decreased in control group. The result of present study confirm the positive effect of self care on children QOL.

4123 POSTER

Result of paediatric Non Hodgkin's Lymphoma with aggressive chemotherapy

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Background: The Non-Hodgkin's Lymphomas (NHL) in childhood are usually high grade and diffuse histology. They require intensified short duration chemotherapy in contrast to adult NHL. The aim of our study was to observe the result of aggressive short duration chemotherapy in paediatric NHL.
Materials & Methods: We included consecutive 120 paediatric NHL patients in paediatric haemato-oncology department of Netaji Subhash Chandra Bose Cancer Research Institute during period from June 1996 to December 2008. The inclusion criteria were patients less than 25 yrs of age with a diagnosis of NHL and Patients are clinically staged according to the St. Jude's (Murphy's) classification. Patients with >25% blasts in the bone marrow were treated as leukemia and excluded from the study. Each patient received 3cycles A and 3 cycles B of MCP 842 protocol of INCTR. Response was assessed at the completion of 2 cycles of chemotherapy (1 each of A and B).
Result: A total of 120 previously untreated patients were entered in the study. The age range was 1 to 25 yrs (median 12.6). 35 (29.17%) patients had Lymphoblastic Lymphoma (LL), 49 (40.83%) patients had Burkitt Lymphoma. 30 (25%) had diffuse Large B Cell Lymphoma (DLCL) and 6 (5%) had Anaplastic Large Cell. The abdomen was the most common site in 40 cases (33.3%) of involvement followed by the mediastinum in 19 cases (15.83%). One hundred one (84.17%) patients achieved complete response after 2 cycles of therapy. 10 (8.33%) patients achieved partial response and 5 (4.17%) had no response, 5 (4.17%) were not evaluable. With median follow up of 4 years (range 6 months – 10 years) a total of 32 (26.67%) patients (14 LL, 12 Burkitt Lymphoma, 4 DLCL and 2 ALCL) had died. The causes of death were progressive disease in 24, infection in 6, and hepatitis in 1, and unknown 1. Eighty eight (73.33%) patients are alive and in complete remission. The patients tolerated chemotherapy well. Grade IV febrile Neutropenia was seen in 26 patients.
Conclusion: Result of MCP842 is promising.

4124 POSTER

Cardio toxic effects of anthracycline therapy in children with acute lymphoblastic leukemia

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Background: Over the last 25 years of clinical trials, a significant rise in the rate of complete remissions as well as an increase in long-term survival of children with acute lymphoblastic leukemia has been achieved. Therefore, growing attention is now focused on the toxic effects of chemotherapy. Cardio toxicity is well known side effect of chemotherapy with antracyclines.
Material and Methods: This is retrospective study of 60 children with ALL, which were treated after ALL BFM 95 protocol. The study is a part of a bigger study that involves all toxic effects of the ALL-BFM-95 protocol. We evaluated the ECG and cardioechosonography made before starting the protocol and further ECG (made weekly) and echo sonograms made after indication of cardiologist. Values of the EF (Ejection fraction), FS (Shortening fraction) and changes in the rhythm were evaluated.
Results: From the total number of 60 patients, 21 manifested acute cardio toxic effects. Fifteen of them were female and 6 male (2.5:1), and the average age was 7 years, (1.5−12 years). The changes that were registrated were: sinus tachycardia in 19 cases (90%), frontal pericardial separation in 2 cases, problems with repolarization in 5 patients, 3 cases of initial secondary cardiomyopathy and 1 case of cardiac hypertrophy. All of the changes disappeared after the end of the chemotherapy, except the tachycardia. Tachycardia manifested 10 patients in protocol I, after the cumulative dosage of 120 mg/m^2 of anthracyclines, in protocol M tachycardia manifested 4 patients, and 5 patients manifested tachycardia in protocol II after the cumulative dosage of 240 mg/m^2. The EF was in the referent values of 65−83 in all of the patients. Also, there were no significant changes in the values for FS.
Conclusion: The major cardiac problem in our patients was sinus tachycardia, a disorder of the rhythm in 90% of the children. Several children manifested reversible changes in echocardiogram. None of the children had significant changes in EF and FS. Further follow-up of these patients is necessary to detect eventual late cardio toxic effects of chemotherapy.

4125 POSTER

Childhood osteosarcoma relapse – treatment results and prognostic factors

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Background: Relapse of osteosarcoma is always a challenge in pediatric oncology. The aim of our study was to evaluate results of chemotherapy regimens and analyze prognostics factors in children with relapse of osteosarcoma.
Materials and Methods: From 2000–2007, we treated 57 patients (pts) with non metastatic osteosarcoma, median age 15.5 years (range 3−18). 29 pts relapsed. 26 pts with osteosarcoma relapse were treated, and 3 pts with OS relapse refused the treatment. In 24 pts pulmonary metastases were detected (7 solitary), while 2 pts had local relapse of disease. Disease free interval (DFI) was more than 1 year in 12 patients. Surgery was performed in 20 pts (17 thoracotomy, 3 amputation). Chemotherapy regimens administered were: HD IFO-VP16 (11 pts), HDMth/IFO-VP16 (6 pts), HDMth/Carbo-VP16 (9 pts).
Results: During 8–116 months follow up period (Me = 32 pts), disease free survival rate was 33.12%. There was no significant difference in survival in relation to the type of chemotherapy regimen applied. Prognostic factors that influenced survival were: presence of a solitary metastasis ($p = 0.026$), local relapse of disease ($p = 0.002$), completeness of resection ($p = 0.043$) and DFI longer than 1 year ($p = 0.039$).
Conclusions: The use of aggressive combined therapy (surgery and chemotherapy) and evaluation of prognostic factors are necessary for successful treatment in patients with osteosarcoma relapse. Chemotherapy regimen HD IFO-VP16 had better initial tumor response, but in longer follow up the survival rate was similar to other chemotherapy groups.