features as well as response to treatment and survival of adult Hodgkin's disease (HD) patients.

Methods: The study was performed on patients presented to NCI, Cairo, during the period from January 1975 to December, 1991.

Results: The total number of patients included was 914. Seventy percent (No. 642) were males, male to female ration 2.4:1 and the median age was 31 years. The most common histologic subtype was mixed cellularity (47.9%) followed by nodular sclerosis (21.7%), lymphocyte predominance (18%) and lymphocyte depletion (12.3%). Fifty seven percent stage III and IV and 5% presented with relapsing disease. Nodal presentation was encountered in 92%, and B symptoms was found in 41% of cases. Early stages were treated mainly by radiotherapy with complete response (CR) in 99% for stage I, 88% for stage II and 86% for stage III. patients with stage III and IV treated with combination chemotherapy achieved CR in 78.6% and 53.1% respectively. The 5-year relapse free survival (RFS) and overall survival (OS) were 35% and 43.7 while 10-year RFS and OS were 3% and 4.6% respectively.

Conclusion: These poor results may imply that we may have been less aggressive in our treatment or we are dealing with a population of patient with immune derangement due to poor nutrition or chronic parasitic infestation. Also endemicity of Bilharziasis in Egypt with liver affection may limit administration of optimal doses and schedules of chemotherapy.

1197 POSTER

Somatostatin receptor scintigraphy for the initial staging of non-Hodgkin's lymphomas

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Purpose: We present the results of a prospective blinded study comparing somatostatin receptor (SS-R) scintigraphy with conventional staging methods for initial staging of patients with NHL.

Methods: 150 Consecutive previously untreated NHL patients (50 low grade, 66 intermediate grade, 28 high grade and 6 unclassifiable) underwent scintigraphy after i.v. injection of [111-In-DTPA-D-Phe-1]-octreotide, 220 MBq. SS-R scintigraphy and conventional diagnostic tests were interpreted independently and the results compared.

Results: 89% (133/150) of the patients had a positive scan. In 31 patients (21%) the clinical stage was altered because of the result of SS-R scintigraphy and as a result the treatment plan was changed in 5 patients (3%). The lesion-based analysis showed an overall sensitivity of 65% (288/443). The sensitivity in the supra-diaphragmatic region was 72% (189/261) and 50% (70/139) in the infra-diaphragmatic region. A false positive uptake of radioactivity was observed in 16 lesions, mainly due to scars, hematomas and infections.

Conclusion: SS-R scintigraphy appears to disclose unknown lymphoma localizations in some patients with NHL, however the sensitivity especially for infra-diaphragmatic lesions is low.

1198 POSTER

Analysis of genomic instability by microsatellite analysis in childhood Burkitt's and large cell diffuse lymphoma

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Purpose: Genomic instability may, in addition to having bearing on the propensity for developing malignancy, be of relevance to sensitivity to genome directed therapy. In childhood lymphoma, highly variable karyotype abnormalities are commonly reported, while chemotherapy in view of disease localisation and stage at presentation is often the only viable option. For both aspects, information on prevalence of this abnormality in lymphoma is of interest.

Methods: Primary diagnostic, consecutive samples of 16 cases of diffuse large cell lymphoma (9 T-cell, 7 B-cell, mean age 9 y 9 m (range 1 y 5 m–16 y 8 m) and 13 Burkitt's Lymphoma, mean age 8 y 3 m (range 4 y 2 m–14 y) seen in a single treatment centre between 1976 and 1996 were included in the study. After routine extraction, amplifications were carried out at the loci D3S1304 and D3S1537 (both closely distal to the VHL tumour suppressor gene), ELN gene, D7S1870, IFNA, D1S243 (1p36) all of which show microsatellite variation. Analysis used isotopic labelling during amplification followed by non-denaturing gel electrophoresis and autoradiography.

Results: In two cases: Male age: 9 yrs 7 m, abdominal mass, B-cell large cell diffuse MNHL and Male, age 5 yrs, caecal mass, Burkitt's Lymphoma, unusual variants were observed. Other lesions were normal, although no normal tissue was available from separate analysis for direct comparison.

Conclusions: Only 2/28 childhood Burkitt's/large cell diffuse MNHL feature minor microsatellite variations warranting further study but suggesting a minor role for this pathway in contributing to genomic instability in lesions of this type.

1199 POSTER

Primary gastric lymphoma – The Royal Marsden Hospital experience

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Purpose: We aimed to determine the role of surgery in the treatment of primary gastric lymphoma (PGL) in patients receiving chemotherapy (CH) at this hospital since 1985.

Methods: Patients with intermediate- or high-grade PGL, defined according to the criteria of Lewin and Herrmann, and staged according to Musshoff, were identified using a prospectively accrued database.

Results: 41 patients (29 men, average age 65 (range 19–81), median follow up 4 1/4 years) fulfilled the inclusion criteria. At presentation, 35 patients complained of anorexia, 33 of abdominal discomfort, 31 of weight loss and 11 of recurrent vomiting. 15 patients had GI bleeding (5 haematemesis, 5 melaena and 5 microcytic anaemia), and 5 patients presented with perforation, 3 requiring emergency SX. 17 patients had early PGL (9 stage IE, 8 stage IIE1). 8 of 17 patients had initial SX, and 2 relapsed (1 before CH could be initiated). One of 9 patients receiving CH alone relapsed. All 3 relapsing patients achieved remission with further CH. Of the patients with more advanced stage PGL, 16 received CH alone, 5 SX followed by CH and 3 had radiotherapy (RT) as well as CH. The group receiving CH had more patients with advanced disease. In total 6 patients died with disease, all with advanced stage: 3 had received CH alone, 2 SX + CH and 1 CH followed by RT. All 6 deaths occurred within 18 months of diagnosis. 3 patients had malabsorption following gastrectomy, while GI-bleeding occurred in 5 patients following chemotherapy (none severe). No perforations occurred in the 25 CH patients.

Conclusions: CH alone appears to be as efficient as the combination of SX and CH in intermediate and high-grade PGL of any stage. Complications rarely occurred as a side-effect of CH, and were not life threatening.

1200 POSTER

Inhibition of spontaneous apoptotic cell death of B-chronic lymphocytic leukemia (B-CLL) cells by interleukin-12 in vitro

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A variety of cytokines including interleukin-2 (IL-2) have been reported to modulate cell survival in B-CLL. Since functional similarities between IL-2 and IL-12 have been described, we analyzed potential effects of IL-12 on the spontaneous vitro apoptosis of B-CLL cells. Ten peripheral blood samples enriched for B lymphocytes from seven patients with B-CLL (three men and four women aged 44 to 76 years) who had received no specific antineoplastic therapy including steroids for at least 6 months prior to sample collection were analyzed. One patient presented with stage 0 (according to the Rai staging system), four patients were stage II, and two patients stage IV. Mean time interval from first diagnosis to sample collection was 60 months. Peripheral blood mononuclear cells were isolated and depleted of contaminating cells via plastic adherence and sheep red blood cell rosetting. Cells were then short term cultured for 24 hours under serum free conditions in the presence of IL-12 (1 ng/ml). Incubation with IL-4 (10 ng/ml over 24 hours), which has been reported to effectively suppress spontaneous apoptosis in vitro was used as control for potential inhibitory cytokine effects. Apoptotic cell death was measured employing an enzyme-linked immunoassay measuring cytoplasmatic histone-associated fragmented DNA mono- and oligonucleosomes via anti-histone antibodies (Boehringer Mannheim, Germany). Results of the photometric absorbance (A) measurements are given as ratio of $A_{\text{cytokine mediated apoptosis}}/A_{\text{spontaneous apoptosis}}$ (A_{cy}/A_{sp}). We found that IL-4 used as control could induce inhibition of apoptotic cell death (as

defined by $A_{cy}/A_{sp} < 0.9$) in five of seven patients (eight of ten samples; mean A_{cy}/A_{sp} 0.43 versus 0.95). Inhibitory effects of IL-12 on spontaneous in vitro apoptosis ($A_{cy}/A_{sp} < 0.9$) were observed in three of seven patients (five of ten samples; mean A_{cy}/A_{sp} 0.57 versus 1.2). IL-12 mediated inhibition of spontaneous cell death occurred only in patients showing a simultaneous IL-4 induced protection from in vitro apoptosis ($p \leq 0.0385$). Three of four patients who developed progressive disease according to NCI criteria within twelve months after sample collection presented with both IL-4 and IL-12 mediated inhibition of in vitro apoptosis. In contrast, no significant inhibition of apoptosis by IL-12 alone, or both IL-12 and IL-4 was observed in patients with prolonged stable disease. The significance of our observation for the accumulation of malignant B lymphocytes in vivo is unclear. An increased susceptibility against IL-12 mediated inhibitory effects may be postulated for those B-CLL cells responding to IL-4. Whether the clinical outcome of patients with maintained versus lost in vitro responsiveness to inhibitory cytokine effects can help to define biological subgroups of B- CLL will be the subject of further studies.

1201 POSTER

The vedex regimen: An effective and well tolerated palliative treatment for non-Hodgkin's lymphoma (NHL)

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Objectives: To evaluate the efficacy and toxicity of a novel weekly palliative chemotherapy regimen with vincristine 1 mg, epirubicin 30 mg/m2 and dexamethasone 20 mg (VEDex) in relapsed NHL.

Patients and Methods: This was a retrospective study of 49 patients with NHL. The median age was 68 years (range of 34 to 88 years). 17 patients (34.7%) had low grade disease resistant to conventional alkylating therapy and 3 patients (6.1%) had transformed NHL. 29 (59.2%) had relapsed high grade NHL; of these 22 had poor performance status which precluded high dose chemotherapy and 7 were heavily pre treated. Responding patients received a total of 8 cycles of treatment but treatment could be repeated at a later stage if required.

Results: The overall response rate was 67.3%, 10 patients (20.4%) achieved a complete response and 23 (46.9%) a partial response. A further 16 patients (32.7%) had stable disease. 23 patients (46.9%) reported complete resolution of symptoms and 15 (30.6%) had partial resolution of symptoms. Grade III neutropenia was seen in 7 patients (14.3%) and grade IV in 1 (2%). Other significant toxicity's included nausea and vomiting grade II (4.1%), grade III (4.1%) and alopecia grade III (2%). Peripheral neuropathy of greater than grade I was not reported. The median survival from onset of treatment was 6 months. No patients died of treatment related toxicity.

Conclusion: VEDex is an effective and well tolerated palliative treatment for patients with relapsed NHL who have a poor performance status or who are heavily pre treated.

1202 POSTER

The comparison of somatostatin receptor and 67-gallium scintigraphy in the staging of malignant lymphomas

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Purpose: We conducted a prospective blinded study comparing somatostatin receptor (SS-R) scintigraphy with gallium (GA) scintigraphy for staging of patients with malignant lymphomas.

Methods: SE-R scintigraphy was performed in 7 Hodgkin and 13 non-Hodgkin's lymphoma patients after i.v. injection of [111-In-DTPA-D-Phe-1]-octreotide (220 MBq). One week later high dose GA scintigraphy (296 MBq) was performed. The blindly read scans were compared with standard staging procedures.

Results: 16/20 patients were true positive and four were false negative on SS-R scintigraphy. On GA scintigraphy 9/20 patients were true positive and 11 false negative. With standard staging procedures 58 lesions could be identified. The sensitivity for SS-R scintigraphy was 40/58 (69%); 28/35 (80%) in the supra-diaphragmatic region and 9/18 (50%) in the infradiaphragmatic region. The sensitivity for GA scintigraphy was 28/58 (48%); 19/35 (54%) in the supra-diaphragmatic region and 9/18 (50%) in the infradiaphragmatic region. SS-R scintigraphy visualized 13 previously unknown lesions, four of these lesions were also visualized by GA scintigraphy.

Conclusion: The interpretation of the SS-R scan was easier because of its lower background radioactivity. The results of SS-R scintigraphy are at least comparable to GA scimigraphy.

1203 POSTER

IDEC-C2B8-induced B cell depletion is not associated with significant immune suppression or infection

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Purpose: Short course (22 day) therapy with the chimeric monoclonal anti-CD20 antibody IDEC-C2B8 (rituximab) has resulted in a 50% ORR in evaluable patients with relapsed low-grade or follicular non-Hodgkin's lymphoma. Analysis of integrated safety data was performed to evaluate risk related to B cell depletion.

Methods: Of 282 pts from 5 single agent trials, 217 received 375 mg/mZ/IVqwk ×4.

Results: Median circulating B lymphocyte counts dropped to zero following the 1st dose of IDEC-C2BS. CD3, CD4, CD8, and NK cell counts remained unchanged. B cell recovery began at 6–9 months and was complete by 12 months. Mean IgG and IgA levels remained normal. Mean IgM dropped transiently. 12% of pts had >50% drop in either IgG, IgA or IgM. Patients with low immunoglobulins were no more likely to develop infection. Only 2% of pts required hospitalization for infections (<1% vital, no fungal or parasitic) during treatment and 2% during the one year follow up period.

Conclusion: IDEC-C2B8 has significant clinical activity and the associated B cell depletion does not appear to increase the risk of immunosuppression or infection.

1204 POSTER

Rescue treatment with etoposide, platinum, ifosfamide and dexamethasone for non-Hodgkin's lymphoma

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Approximately 50% of the patients with non-Hodgkin lymphoma (NHL) will relapse after first line treatments. We describe the results of the EPID rescue combination.

Methods: 32 patients (pts) with refractory or relapsed NHL were treated with the regimen: Etoposide 100 mg/m^2 on days 1, 2, 3 + Platinum 100 mg/m^2 divided in 3 days + Ifosfamide 5 g/m^2 divided in 3 days + Mesna 60% of the daily Ifosfamide dose and Dexamethasone 20 mg × 3 days. The pts median age was 51 years. All pts received previously 1–2 chemotherapy regimens, the most common were CHOP and VACOP-B. Histology characteristics: high lymphoma in 27 pts and low-grade with transformation in 5 pts., bulky tumors in 80%.**Results:** After 140 delivered cycles 31 pts were evaluable for response and 32 for toxicity. Response rate: complete in 38.7% (12 pts) and 41.9% (13 pts) for an overall response of 80.6%. The median DFS was 13 months (range 2–42 months) with a median overall survival of 20 months (range 2–48 months). Toxicity in 140 cycles was: Grade (G) 3 neutropenia 12.5%, G4 19%, thrombo cytopenia G3 3.2%, G4 7.5%. Two pts died after septicemia and thrombocytopenia. Dehydration and electrolyte imbalance G4 in two pts.

Conclusion: The EPID regimen was highly effective with a prolonged survival rate. The most important toxicity was treatable neutropenia. We suggest the use of EPID scheme with colony stimulating factors.

1205 POSTER

A decade of clinical investigation in elderly patients with non-Hodgkin's lymphoma: Results as reported in the literature

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Purpose: To explore the trends in the treatment of elderly patients with non-Hodgkin's lymphoma reported in last 10 years.

Methods: All relevant publications in MEDLINE, and the proceedings of the ECCO, ESMO, ASH, and ASCO meetings from 1987 to 1996 were categorized in 24 items, including study design (retrospective, phase II or (III), treatment (conservative or aggressive), characteristics of patients and IPI prognostic factors, response, survival, and toxicity.

Results: In 64 reports, we found 43 chemotherapy regimens and 90 treatment arms. The reports were retrospective in 22% of the cases, phase II trials in 64%, and randomized clinical trials in 14%. Most of the randomized