enlargement of a-functional cell number was accompanied. To estimated B-cell functional activity of circulated PBL in terms of high presence or absence of the normal cells pool, we analyzed association of CD23 membrane molecule expression on cell surface membrane in terms of serum concentration of imunoglobulins classes of IgM, IgG, IgA.

Material and methods: Study included 77 B-CLL patients, diagnosed by classical criteria including FAB and Binet staging system with immunophenotyping procedure by Flow cytometry on FACScalibur (Becton-Dickinson, San Jose, USA) using panel of monoclonal antibodies (anti-CD5, CD10, CD19, CD20, CD21, CD23, CD38 and HLA-DR) for cell membrane molecule expression evaluation and B-CLL disease confirmation. The functional activity of circulated B lymphocytes was done by determination sera concentration of immunoglobulin classes IgM, IgE and IgG using RID plates (Behring, Germany).

Results: The results showed significant decrease of IgM concentration with disease progression based on FAB and Binet clinical classification. In addition, individual analyses of CD23 expression in terms of the functional activity of B cells showed a strong correlation with decrease of IgM concentration (Pearson correlation, $p<0.05$), but no with IgG or IgE. Since patients in advance stage of disease showed some immune system disturbance and consequently recurrent bacterial infections we confirmed in disease progression simultaneously decrease of CD23, a negative disease prognostic marker associated with low IgM.

Conclusions: This finding were probably consequence of large number of tumor cells and low of normal cells without possibility for discrimination its, based only on B cell marker presence expression, (high expression of CD5), but partly confirmed and better explained in association with low IgM production.

1024 POSTER

Etoposide, Platinum, Ifosfamide and Dexamethasone (EPID) as second line treatment in patients with non-Hodgkin's lymphoma (NHL)

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Background: The NHL are becoming an increasingly common cancer, but only 40-50% patients are cured with current regimens. Patients relapsing have a poor prognosis and chemotherapy usually incorporates drugs such as cisplatin and etoposide (CE). The use of CE plus Ifosfamide and Dexamethasone could increase the response in NHL. Aim. To evaluate the efficacy and safety of EPID as second line in pts with NHL. Patients and methods: We included pts with NHL, failure or relapse after to CHOP, measurable disease, ECOG 0-2. Treatment: Etoposide 80 mg x m2 d 1-3, Platinum 80 mg x m2 delivered in 3 days, Ifosfamide 5000 mg x m2 delivered in 3 days and Dexamethasone 16 mg iv d 1-3 every 3 weeks.

Results: We included 30 pts, median age 52 years (range 21-76), stage III/IV 46%, extra nodal 8%, histological type (working formulation): LG 20%, I 69%, HG 11%, median time to progression or failure with CHOP 8.2 months. The Overall response rate was 73% (CR 35% and PR 38%) and SD 12%. Pts with CR the time relapse was 18.2 months, in patients with PR time to progression was 6.6 months. Overall survival (OS) was 16.6 months. The 2 years overall survival was 26%, and for pts with CR was 45%. Toxicity grade 3/4 (WHO criteria): neutropenia 56%, febrile neutropenia 15%, anemia 18%, thrombocytopenia 15%, mucositis 7%, nausea and vomiting 31% and diarrhea 3%. There was one related to treatment death associated with febrile neutropenia.

Conclusion: EPID is an active regimen in NHL with good response (73%) and toxicity manageable. Pts with CR (1/3) the OS is excellent. Large studies are required to establish the therapeutic potential but this regimen appears to be a reasonable option.

1025 POSTER

Long-term outcome and mortality trends in follicular lymphoma treated with radiation therapy

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Background: Early stage follicular non-Hodgkin's lymphoma (NHL) is associated with prolonged survival but a high likelihood of relapse. We reviewed the long-term treatment outcomes, prognostic factors, and competing causes of death in patients who received radiation therapy either alone or in combination with chemotherapy as initial therapy for their localized follicular NHL.

Materials and Methods: Between 1972 and 2000, 106 patients presented with stage I-II, grade 1-2 follicular NHL and received radiation therapy alone or combined chemotherapy and radiation therapy at our institutions. Patients previously treated for NHL were excluded from the analysis. The median age at diagnosis was 55 years (range 21-93). Seventy-four percent had stage I disease, and 26% had stage II disease. Histology was grade I in 66% and grade 2 in 34%. Extranodal disease was present at diagnosis in 27%. Tumor size was $\leq$ 3 cm in 53% and >3 cm in 47%. Seventy-six percent were treated with radical radiation therapy alone, and 24% received combined chemotherapy and radiation therapy. Median radiation dose was 36.6 Gy. Overall survival (OS) and freedom from treatment failure (FFTF) were estimated using the Kaplan Meier method. Survival curves were compared using log-rank tests. A Cox proportional hazards model was used to determine predictive factors.

Results: Median follow-up was 12 years (range 0.5-26). The median survival time was 19 years. The 5-, 10-, and 15-year OS rates were 93%, 75%, and 62%, respectively. On both univariate and multivariate analysis, age $\geq$ 60; was the only significant adverse prognostic factor with respect to OS, with 15-year OS rates of 72% for age <60 and 43% for age $\geq$ 60 (p=0.001) (Hazard ratio [HR]=3.04; 95% CI 1.45-6.39; p=0.003). There were 35 deaths; causes were NHL (19), second malignancy (6), cardiac disease or stroke (3), and unknown (7). FFTF rates at 5, 10 and 15 years were 72%, 46%, and 39%, respectively. Relapse data were available for 97 patients, of whom 47 (48%) relapsed. Seven patients recurred within the initial radiation field. No factors were significantly predictive for FFTF on univariate analysis. On multivariate analysis, tumor size >3 cm was the only significant adverse factor for FFTF (HR= 1.98; 95% CI=1.04-3.79; p=0.04).

Conclusions: Age <60 years was associated with better overall survival, and patients with tumors $\leq$ 3 cm had a lower risk of relapse or death from NHL. Stage, grade, presence of extranodal disease, and treatment with chemotherapy did not have a significant impact on relapse rates or overall survival. Although patients with early stage follicular lymphoma have a long median survival, the leading cause of death to date remains NHL.

Imaging

1026 POSTER

In vivo monitoring of NK cell mediated host defence against lung micrometastasis using positron emission tomography (PET) and [^{18}F]-2-deoxyglucose (FDG)-labeling of tumor cells

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Background: Recently we have demonstrated very rapid cellular host defense mechanisms against transplanted syngeneic mammary adenocarcinoma cells in the lungs of F344 rats using immunohistological and vital dye labeling techniques. Already minutes after tumor cell inoculation, a significant increase of NK cell to tumor cell co-localizations was found in the histological work up of lung tissue. However, direct in vivo evidence on the early kinetics of the cellular host defense against metastatic cells is lacking. Here we report direct in vivo monitoring the kinetics of NK cell dependent tumor cell lysis using dynamic PET-scanning of 2-18F-deoxyglucose (FDG) labeled tumor cells in the lungs of either NK cell depleted or intact F344 rats.

Materials and methods: Cultured MADB106 tumor cells were labeled by incubation with FDG and Insulin (1U/l) and injected via the lateral tail vein of F344 rats. Lysis of the in vitro-loaded tumor cells was then monitored via dynamic PET scanning up to 45 minutes following injection. Animals that had received NK cell depletion with mAb 3.2.3 two days earlier were investigated as well as sham-treated control animals (each n = 6). After depletion, no NK cells were detectable by immunohistology in lungs. Sets of 2 depleted versus 2 intact animals were scanned simultaneously using a specialized holding device in a standard human PET scanner (Hr+, Siemens/ CPS; 3D mode). Lung time activity functions were evaluated by means of ROI technique.