(57 to 203). Overall, 59% of patients developed mild (27%), moderate (25%) or severe (7%) clinical complications. Complications did not correlate with follow-up, clinical stage and RT extent. In contrast, complications correlated with CT ($P = 0.058$), independently of RT.

Results concerning the survey and the quality of life in these patients will be presented.

791 POSTER

CNS INVOLVEMENT IN NON-HODGKIN'S LYMPHOMA (NHL)

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Twenty-seven cases of CNS involvement were found among 498 consecutive patients with NHL. Only 3 of 96 patients with low grade lymphomas (Working formulation) had CNS involvement, in all 3 cases occurring after transformation into high grade lymphoma.

In univariate analysis of 402 patients with intermediate or high grade lymphoma lymphoblastic histology (LB), age <35 years, B-symptoms, stage IV disease, testis involvement (2 of 6 patients), and bonemarrow (BM) involvement were significant. When LB was excluded BM became insignificant ($P = 0.65$). Sex, extranodal disease and LDH >400 U were insignificant. In multivariate analysis only LB, Stage IV disease and B-symptoms were significant.

It is concluded that other risk factors such as young age and BM involvement are connected with LB histology and do not constitute true independent risk factors.

792 POSTER

INCREASED GLUCOSE METABOLISM IN NON-HODGKIN'S LYMPHOMA AS STUDIED WITH FDG PET

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Glucose metabolism has been demonstrated to be increased in neoplastic tissue, and to reflect the grade of malignancy of human cancer. We studied *in vivo* glucose metabolism in 22 pts with untreated non-Hodgkin's lymphoma with fluorine-18-fluorodeoxyglucose (FDG) and positron emission tomography (PET). FDG uptake in lymphoma deposits was measured as standardized uptake values (SUVs) of the tracer, and compared with histological classification and proliferative activity.

Results: The median SUV of the lymphomas was 8.5. A high FDG uptake in tumors was associated with high histological degree of malignancy by the Working Formulation ($P = 0.005$) or by the Kiel classification ($P = 0.003$). A high FDG accumulation was also associated with a high S-phase fraction ($r = 0.786$, $P = 0.002$).

Conclusion: FDG PET may find application in assessing the grade of aggressiveness of lymphoma in clinically problematic cases.

793 POSTER

RAG1 AND 2 EXPRESSION IN THE GENESIS OF HIV ASSOCIATED NON-HODGKIN'S LYMPHOMAS (NHL)

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The mechanisms responsible for the high incidence of NHL during HIV infection remain unclear. We test the hypothesis that an abnormal expression (a normal one is necessary for the physiological recombination in lymphoïd cells) of the RAG1 and 2 genes, induced by HIV infection, could be involved in the chromosomal translocations leading to NHL. We investigate their expression in various lymphoid tissues of HIV infected patients (pts). *Material:* peripheral blood mononuclear cells (PBMC) (5 pts), lymph nodes (3 pts), bone marrow (1 pt), spleen (3 pts) from HIV infected pts, and benign hyperplastic lymph nodes from 3 non HIV infected subjects as well as normal PBMC infected *in vitro* with HIV1, (with or without PHA treatment) were analyzed. *Methods:* total cellular RNA was isolated, reverse transcribed with 3′ primers of RAG 1, RAG 2 and actin primers. PCR was then performed on cDNA with adequate RAG1, 2, and actin (control) primers (JC Bories Blood, 1991, 78). RNA from REH cells, a RAG expressing cell line, and from Hela (non expressing cell line) were used as controls. This method allows detection of 10000 RAG expressing cells and discriminates illegitimate transcription (J.C. Bories, *Blood*, 1991, 78). PCR products were run on agarose gel to detect specific PCR bands. *Results:* No RAG 1 and 2 expression was detected in any sample tested except REH. *Conclusion:* These results do not favor the hypothesis that deregulated RAG 1 and 2 expression participates in the lymphomagenesis of HIV associated NHL. However, we cannot exclude that an abnormal RAG 1 and 2 expression exists, if it occurs in a very limited number of cells, which would have be undetectable in our system.

794 POSTER

CLONAL EVOLUTION IN PROGRESSIVE LYMPHOMAS

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Introduction: Alterations in clinical behaviour, morphological appearance and immunophenotype are frequently observed in relapsing non-Hodgkin's lymphoma (NHL). The aim of this study was to analyse a material of relapsing or progressive lymphomas with respect to clonality changes, using the immunoglobulin heavy-chain (IgH) as a marker of clonality.

Material and methods: 52 samples taken during the course from 19 NHL cases were investigated with *RFLP analysis* of the IgH locus, *VH gene family specific PCR-SSCP* and in five selected cases by *sequence analysis* of VH gene fragments. Seven cases showed transformation or discordant lymphomas during the course.

Results: In 10 cases no alteration of the IgH locus could be detected by the methods used, By *RFLP* 5/7 cases with transformed/discordant lymphomas and 3/12 with unchanged morphology showed altered IgH patterns. Three cases showed evidence of oligoclonality (> 2 rearranged bands) on RFLP. Altered VH gene *PCR-SSCP pattern* and/or *VH gene family utilization* was observed in 7 cases, 6 of these also showing altered IgH-RFLP. In two cases, a rearrangement involving an additional VH family was amplified at relapse. In two other cases the VH rearrangement from diagnosis was not detected at relapse. *Sequence analysis* revealed point-mutations in the 4 cases (4, 4, 6, 20 mutations, respectively) with altered PCR-SSCP pattern. In one of the two cases with a novel VH gene family utilization at relapse, a VH gene replacement was detected. In the other case, no sequence homology was found between the samples.

Conclusion: Alterations of the clonal IgH rearrangements during the course occurred in about half of the cases, mainly in the transformed/discordant lymphomas and were due to point mutations as well as to presence of different clones of malignant cells.

795 POSTER

EARLY STAGE HODGKIN'S DISEASE (HD): AN ANALYSIS OF PROGNOSTIC FACTORS IN A LARGE SERIES FROM A SINGLE INSTITUTION

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Considerable progresses have been made in the treatment of HD in the last 25 years: cause specific survival rate for HD patients (pts) treated in Florence (all stages combined) is much higher for those treated after 1970 then in those treated before (74% vs 46% at 20 years). Results are even better for early stage HD. However, the analysis of prognostic factors in early stage HD is crucial to the definition of "high risk" groups, to be treated more aggressively, and of "low risk" subsets of patients, for whom the "therapeutic burden" could be reduced, to avoid long term sequelae. We present the results of an analysis on 841 Clinical Stage I–II HD pts (472 of whom have been submitted to staging laparotomy) consecutively treated 1960 through 1991, at the Florence Radiotherapy Department. Data from a single Institution are more homogeneous; moreover, our cases have been submitted to unlimited follow up and long term results have therefore a sound basis. Twenty-years cause specific survival rates are higher in patients: without "B" symptoms (77% vs 59%); with favourable histology (PL, NS); in the younger ones; in the females (78% vs 70%); in patients with CS I (84% vs 71%); in patients without lung hilar involvement (76% vs 65%); in patients presenting with high neck or subdiaphragmatic involvement only. Conversely, bulky mediastinal disease does not seem to adversely affect prognosis. The use of more aggressive treatment options (including chemotherapy) seems to ameliorate prognosis in patients with "B" symptoms. Results of uni- and multivariate analysis of the different factors affecting cause specific and relapse free survival will be discussed.